FINAL ENVIRONMENTAL ASSESSMENT
FOR

HABITAT CONSERVATION PLAN AND ENVIRONMENTAL ASSESSMENT FOR A SECTION 10(a) PERMIT FOR INCIDENTAL TAKE OF THE ENDANGERED CACTUS FERRUGINOUS PYGMY-OWL FOR THE PROPOSED SKYRANCH PROJECT IN THE TOWN OF MARANA, PIMA COUNTY, ARIZONA

Prepared by

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January 28, 2004

.

COVER SHEET

Title For Proposed Action: Environmental Assessment For Section 10(A) Permit For Incidental Take Of The Endangered Cactus Ferruginous Pygmy-Owl For The Proposed Skyranch Project In The Town Of Marana, Pima County, Arizona

Unit of U.S. Fish and Wildlife Service Proposing Action: Regional Director-Region 2, U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

Legal Mandate for Proposed Action: Endangered Species Act of 1973, as amended, section 10(a)(1)(B), as implemented by 50 CFR section 17.22 for endangered species, as well as 50 CFR Parts 13 and 17 regarding endangered species permits.

Permittee: Exeter LXI, LLC

Permit Number: TE-063647-0

Duration: 5 years

Funding Plan: The applicant will preserve 399 to 409 acres on-site in perpetuity as a reserve for the pygmy-owl and establish an endowment to cover management and monitoring on the Reserve.

Responsible Unit of the U.S. Fish and Wildlife Service: U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office, 2321 W. Royal Palm Road, Suite 103, Phoenix, Arizona 85021-4951, (602) 242-0210.

TABLE OF CONTENTS

TABLE OF CONTENTS

Page

ABBREVIATIONS

AGFD	Arizona Game and Fish Department

Applicant	Exeter LXI, L.L.C. and its Successors and Assigns
CE	Conservation Easement
CH	Critical Habitat
Corps	U.S. Army Corps of Engineers
County	Pima County, Arizona
EA	Environmental Assessment
ECM(s)	Environmental Compliance Monitor(s)
ESA	Endangered Species Act
Exeter	Exeter LXI, L.L.C.
FWS	U.S. Fish and Wildlife Service
HCP	Habitat Conservation Plan
IA	Implementing Agreement
Marana	Town of Marana
NEPA	National Environmental Policy Act
Permit	Section 10(a)(1)(B) Incidental Take Permit
Permittee	Exeter LXI, L.L.C. and its Successors and Assigns
Project	103-Acre Portion of Property to be Developed
Property	512-Acre Skyranch Property
Pygmy-owl	Cactus Ferruginous Pygmy-Owl
Reserve	409-Acre Portion of Property to be left in Natural State
ROW	Right-of-Way
SDMSHCP	Sonoran Desert Multiple Species Habitat Conservation Plan
Secretary	Secretary of the Interior
SMA	Special Management Area
T&E species	Species Listed as Threatened or Endangered Species Under the ESA
TOA, Inc.	Thomas Olsen Associates, Inc.

DEFINED TERMS

Active Nest
A nest in which eggs have been laid (Postupalsky 1974).

Activity Center
Refers to the centroid of pygmy-owl observations made following accepted biological monitoring procedures that indicate that an individual pygmy-owl or pygmy-owl pair has established and is (are) defending a territory at that location (Westland Resources 2003).

Breeding pygmy-owl
A paired pygmy-owl of either sex (FWS, pers. comm.).

Breeding Territory
An area *occupied* by one mated pair of birds during the breeding season, containing one or more nests. Each breeding territory indicates the known presence of a mated, territorial pair of potential breeders (Postupalsky 1974).

Dispersal
Movement of individuals to new living areas. This includes both the initial movement from the place of birth to the first site at which a bird will attempt to breed (natal dispersal) and subsequent movement from one breeding location to another (adult dispersal) (Sibley, Elphick, & Dunning 2001)**.**

Disperser or Dispersing pygmy-owl
An individual pygmy-owl which is in the act of dispersing and has not yet established a territory.

Draft EA/HCP
The November 19, 2003 version of the EA/HCP provided by TOA.

Final EA
This document is the final EA.

Home Range
The area that an animal uses in the course of its annual activities. Not necessarily defended (Sibley, Elphick, & Dunning 2001).

Nest
A structure built or occupied by birds for the purposes of breeding. For cavity nesters, a tree hollow, box, etc. (Postupalsky 1974).

Nest Site
The physical location of a nest.

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Non-Breeding pygmy-owl
An unpaired pygmy-owl of either sex (FWS, pers. comm.).

Territory
A defended area in which an animal resides (Sibley, Elphick, & Dunning 2001).

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EXECUTIVE SUMMARY

Proposed Action

This Final Environmental Assessment (EA) has been prepared to address the effects of issuance of an Incidental Take Permit (Permit) under section 10(a)(1)(B) of the Endangered Species Act of 1973, as amended (ESA), for the proposed Skyranch residential development (Project) on 512 acres (Property) located in the Town of Marana, Pima County, Arizona. The Project will consist of a 103-acre residential development. Associated with the Project will be a 409-acre Reserve. A Conservation Easement (CE) will be executed concurrent with issuance of the Permit on ninety percent (90%) (368 acres) of the Reserve (409 acres). The remaining ten percent (10%) of the Reserve will be dedicated in the CE upon completion of Project improvements. The term of the Permit will be five (5) years. Exeter acquired the Property in 2000 specifically for development because of its location. The Property is situated on a major intersection, it is outside the fan sheet flooding drainage zone of the Tortolita Mountains, and has reasonable access to utilities. The Project will consist of up to 440 production lots.

This EA addresses potential direct and indirect effects to the cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*) (pygmy-owl) and its identified habitat which may result from the Project and measures proposed to avoid, minimize, and mitigate, to the maximum extent practicable, those potential effects. On September 21, 2001, a Federal District Court order vacated the "Final Rule" designating Critical Habitat (CH) for the pygmy-owl and remanded the matter back to the FWS "for further consideration consistent with the statutory requirements of the ESA"[1]. On November 27, 2002, the FWS proposed 1,208,001 acres in central and southern Arizona as CH for the pygmy-owl (67 FR 71031). The EA contains measures that will be implemented due to anticipated impacts to the pygmy-owl by the Project, whether directly or indirectly. These measure are designed under the assumption that the Property will be situated within CH for the pygmy-owl when the rulemaking is complete. The document discusses other sensitive species and habitats as identified by FWS as being of potential concern in Pima County, Arizona.

This EA has been prepared in accordance with the National Environmental Policy Act (NEPA). An Implementing Agreement (IA) has been prepared as a separate document. The EA: 1) identifies the purpose and need for an Permit; 2) describes the environment that would be affected by the proposed Project; 3) discusses alternatives considered; 4) describes plans to avoid and mitigate potential impacts to pygmy-owl habitat; and 5) identifies possible environmental consequences of the proposed Project and mitigation measures. The IA is an agreement by and between the FWS and Exeter. The IA is incorporated by reference herein.

[1] See National Association of Home Builders v. Norton, 2001 WL 1876349 (D. Ariz. Sept. 21, 2001).

1.0 INTRODUCTION

1.1 Overview

This document provides the required compliance with the National Environmental Policy Act (NEPA) for a federal action to support the issuance of an Incidental Take Permit (Permit) prepared pursuant to section 10(a)(1)(B) of the Endangered Species Act of 1973, as amended (ESA).

The Permit is related to a proposed residential development (Project) on 512 acres (Property) located in the Town of Marana, Pima County (County), Arizona (Draft EA/HCP - Figures 1 and 2). The Project is owned by Exeter LXI, LLC and will consist of a 103-acre residential development. Associated with the Project will be a 409-acre Reserve. The duration of this Permit is five years. The Habitat Conservation Plan (HCP), if approved, and Permit, if issued, are expected to minimize and mitigate the expected long-term effects to the cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*) (pygmy-owl), a species listed as endangered by the U.S. Fish and Wildlife Service (FWS) under the ESA. The HCP and Permit are designed to avoid to the maximum extent possible, but to authorize a minimum amount of, incidental take of the pygmy-owl (subject to the terms and conditions of the two documents) within the boundaries of the Property by residents, home builders, developers, construction personnel, and maintenance personnel of the residential community. The incidental take authorized by the HCP and the Permit, if approved, is limited to non-lethal harm or harassment of up to four non-breeding pygmy-owls that may be associated with any construction activities within 103 acres plus road and utility construction needs on the 512-acre property; this loss of 103 acres of potential habitat is due to the Project.

Contingency measures have been included in the event a pygmy-owl establishes a nest within 100 meters of the project. Under this circumstance, an additional 10 acres of disturbance would be allowed to compensate for areas set aside to avoid the nesting home range. As a result, up to 113 acres of development (22% disturbance) could occur, with a Reserve of 399 to 409 acres (78% - 80% of the property)

We anticipate that non-lethal harm or harassment of pygmy-owls may occur on the Property during construction and operation of the Project as follows:

- Two (2) non breeding pygmy-owls the first year of construction
- One (1) non-breeding pygmy-owl the second year of construction
- One (1) non-breeding pygmy-owl the last 2 years of construction and for the remainder of the permit.

Section 10(a)(2)(A) of the ESA provides that no Permit may be issued by the Secretary of the Interior (Secretary) acting through the FWS authorizing any take of a listed species, otherwise prohibited by section 9(a)(1)(B) of the ESA, unless the Applicant for the Permit submits to the Secretary a conservation plan that specifies:

1. The impact that will likely result from such take;
2. What steps the Applicant will undertake to minimize and mitigate such impacts, and the funding that will be available to implement such steps;
3. What alternative actions to such take the Applicant considered and the reasons why such alternatives are not being utilized; and
4. Such other measures that the Secretary may require as being necessary or appropriate for purposes of the plan.

The HCP covers the Property located near the southwest corner of the intersection of Tangerine and Thornydale Roads, known as Skyranch, including the Project and the pygmy-owl Habitat Management Reserve (Reserve) (Draft EA/HCP - Figure 2). The Project is located within the Town of Marana, Pima County, Arizona. The Property lies entirely within the area proposed as Unit 3 of Critical Habitat (CH), and within Recovery Area 3 (RA3) and the Northwest Tucson Special Management Area (SMA) as identified in the Draft Recovery Plan for the pygmy-owl (FWS 2003) (Draft EA/HCP - Figure 3). The pygmy-owl was listed as federally endangered on March 10, 1997 (62 FR 10730). CH for the pygmy-owl was designated on July 12, 1999 (64 FR 37419). CH for the pygmy-owl was vacated on September 21, 2001. In November 2002, the FWS again proposed CH for the pygmy-owl (67 FR 71032). The Draft Recovery Plan was released for public review in January 2003 (68 FR 1189).

"Critical Habitat" as defined by the ESA, refers to geographic areas which are essential to the conservation of the species and which may require special management consideration or protection. The EA/HCP is written with full appreciation for the basis on which the Property originally was determined to be pygmy-owl CH. It assumes that no further special management considerations or protections would be required for the Property beyond the measures included in the HCP.

The location and amount of residential areas within the Property provide on-site mitigation for project activities. It is hoped that this proposed development will become an example of land stewardship that adheres to the applicable stringent guidelines set forth by the FWS, thereby encouraging other developments within areas that had been, and may again be designated as CH areas, to adopt similar practices. It assures that no further special management considerations or protections would be required for the Property beyond the measures included in the HCP, should the final designation of pygmy-owl CH include the Property.

The Property is a 512-acre parcel under the jurisdiction of the Town of Marana, Arizona. The zoning of the site is outlined in the Skyranch Specific Plan that was approved by the Town of Marana on October 2, 2001. A copy of this Specific Plan can be found in Appendix A of the draft EA/HCP.

Exeter acquired the Property in 2000 specifically for development because of its location. The Property is situated on a major intersection, is outside the fan sheet flooding drainage zone of the Tortolita Mountains, and has reasonable access to utilities. The Project will consist of up to 440 production lots.

In order to address potential impacts to the pygmy-owl and its identified habitat, Exeter has proposed a development guided by the recommendations outlined in the FWS Pygmy-owl Private Landowner Guidance (FWS 2000) and the Draft Recovery Plan (FWS 2003). The development plan for the Project is described more fully in section 4.1 and is shown in Figure 6 of the Draft EA/HCP.

2.0 PURPOSE AND NEED FOR ACTION

The purpose of the EA/HCP is to evaluate and provide the basis for issuance of an ESA section 10(a)(1)(B) incidental take permit in connection with the development of the Project and operation of the Property. The EA provides an evaluation of the environmental impacts for issuance of a Permit for the Preferred Alternative, one development alternative, and the no action alternative. Because the proposed development of 103 acres of pygmy-owl habitat will occur in an area where there is a history of pygmy-owl occupancy and use, incidental take of pygmy-owls is anticipated. The Permit would authorize the anticipated incidental take of the cactus ferruginous pygmy-owl associated with Project development and operation on the Property. The need for the Permit is to allow otherwise lawful development to proceed.

3.0 DESCRIPTION OF AFFECTED ENVIRONMENT

3.1 Site Location

The Property is located in the northeastern portion of the Town of Marana in Section 6, Township 12 South, Range 13 East. The site lies approximately four and one-half miles east of Interstate 10, six miles north of the Orange Grove Road/I-10 Interchange, six miles west of Oro Valley and four miles south of the Pima/Pinal County line.

Tangerine Road is the northern boundary and Camino Del Norte is the southern boundary. Thornydale Road bounds the property on the east and Camino de Oeste bounds the property on the west. Camino de Manana crosses the northwestern corner of the Property before intersecting with Tangerine Road, forming a discontiguous parcel at the Property's northwest corner.

3.1.1 Legal Description of Project Site

The Property consists of three different parcels. The legal descriptions of these parcels are as follows:

PARCEL 1: Commencing at a point on the West line of Section 6, Township 12 South, Range 13 East, Gila and Salt River Meridian, Pima County, Arizona and said point being 50.00 feet Southerly of the Northwest corner of said Section 6; Thence North 89° 50' 58" East along the Southerly line of Tangerine Road, 2,100.49 feet to a point on the Westerly right-of-way line of Camino de Manana as shown in Book 2 of Road Maps at Page 1; Thence South 32° 33' 03" West, 423.74 feet to a point of curvature; Thence Southwesterly along said curve concave to the Northwest having a central angle of 30° 39" 58", a radius of 768.15 feet and an arc length of 411.13 feet to a point of tangency; Thence South 63° 13' 01" West along said Northwesterly right-of-way line, 889.49 feet to a point of curvature; Thence Southwesterly along said curve concave to the Southeast having a central angle of 09° 17' 36", a radius of 1,689.87 feet and an arc length of 274.10 feet to a point of tangency; Thence south 53° 55' 25" West, 476.90 feet to a point of curvature; Thence Southwesterly along said curve concave to the Northwest having a central angle of 18° 21' 24", a radius of 544.94 feet and an arc length of 174.59 feet to a point on the Westerly line of said Section 6; Thence North 00° 06' 33" West along the Westerly line of Section 6 a distance of 1,527.17 feet to the point of beginning. Containing 42.412 acres of land, more or less.

PARCEL 2: Commencing at a point on the Southerly line of Section 6, Township 12 South, Range 13 East, Gila and Salt River Meridian, Pima County, Arizona and being 30.00 Westerly of the Southeast corner of said Section 6; Thence North 00° 14' 32" West along the Westerly right-of-way line of Thornydale Road, 2,638.32 feet to a point 30.00 Westerly of the

East one-quarter corner of said Section 6; Thence North 00° 11' 44" West along said Westerly right-of-way line 1,319.02 feet to the Southerly line of Lot 1; Thence South 89° 52' 13" West along the Southerly line of Lot 1 a distance of 780.00 feet to a point on the Easterly line of that parcel as described in Docket 9825 at Page 1167 and Docket 9398 at Page 1375; Thence South 00° 11' 44" East along the Easterly line of said parcel, 570.00 feet to the Southwest corner thereof; Thence South 89° 52' 13" West along the Southerly line of said parcel, 400.00 feet to the Southwest corner thereof; Thence North 00° 11' 44" West along the Westerly line thereof, 570.00 feet; Thence South 89° 52' 13" West, 2,022.82 feet; Thence North 00° 06' 46" West, 30.00 feet; Thence North 89° 52' 13" East 570.00 feet; Thence North 00° 06' 46" West, 1,016.49 feet to the Southerly right-of-way line of Tangerine Road and 50.00 feet Southerly of the Northerly line of said Section 6; Thence South 89° 50' 58" West along said right-of-way line 208.84 feet to a point on the Easterly line of Camino de Manana as shown in Book 2 of the Road Maps at Page 1; Thence South 32° 33' 03" West along the Easterly right-of-way line of said road, 462.27 feet to a point of curvature; Thence Southwesterly along said curve concave to the Northwest having a central angle of 30° 39' 58", a radius of 828.15 feet and an arc length of 443.25 feet to a point of tangency; Thence South 63° 13' 01" West, 889.49 feet to a point of curvature; Thence Southwesterly along said curve concave to the Southeast having a central angle of 09° 17' 36", a radius of 1,629.87 feet and an arc length of 264.36 feet to a point of tangency; Thence South 53° 55" 25" West, 476.90 feet to a point of curvature; Thence Southwesterly along said curve concave to the Northwest having a central angle of 20° 09' 08", a radius of 604.94 feet and an arc of length of 212.77 feet to a point on the Westerly line of said Section 6 and from which point the radius point of said curve bears North 15° 55' 27" West; Thence South 00º 06' 33" East along the Westerly line of Section 6 a distance of 681.34 feet; Thence South 00° 11' 38" East, 159.22 feet; Thence South 00° 10' 12" East, 2,483.04 feet; Thence South 00° 07' 49" East, 92.32 feet to the Southwest corner of Section 6; Thence North 89° 54' 18" East along the Southerly line of said Section 6 a distance of 2,408.05 feet to the South one-quarter corner of Section 6; Thence North 89° 46' 40" East 2,610.69 feet to the point of beginning containing 461.44 acres of land, more or less.

PARCEL 3: Commencing at the East one-quarter corner of Section 6, Township 12 South, Range 13 East, Gila and Salt River Meridian, Pima County, Arizona; Thence South 89° 07' 10" West along the Southerly line of the Northeast one-quarter of Section 6 a distance of 30.00 feet to a point on the Westerly right-of-way line of Thornydale Road; Thence North 00° 11' 44" West along said Westerly right-of-way line, 1,319.02 feet to the Southerly line of Lot 1; Thence South 89° 52' 13" West along the Southerly line of Lots 1 and 2 a distance of 1,942.82 feet; Thence North 00° 06' 46" West, 30.00 feet to the true point of beginning; Thence

continuing North 00° 06' 46" West, 370.00 feet; Thence South 89° 52' 13" West, 630.00 feet; Thence South 00° 06' 46" East, 370.00 feet; Thence North 89° 52' 13" East, 630.00 feet to the true point of beginning, containing 5.351 acres of land, more or less.

3.2 Environmental Setting

The Property is an approximately 512-acre, undeveloped site located in the Town of Marana, at the southwest corner of Tangerine and Thornydale Roads. The Property is located within Unit 3 of proposed CH for the pygmy-owl.

The Property is at an elevation of 2540 to 2660 feet on the southern bajada of the Tortolita Mountains and slopes gently to the southwest. The bajada is structured as alluvial fans comprised of parent material from the Tortolita Mountains. There is no exposed bedrock on the Property. The soils are predominantly sandy loams, gravels, caliche, and rocks smaller than six inches. Drainage bottoms are composed of clean, large grain sands. Several drainage ways bisect the Property, creating an undulating topography. The washes originate in the northeast and flow toward the southwest.

3.2.1 Vegetation

The vegetation community on the Property is of the Palo Verde-Cacti-Mixed Scrub Series of the Arizona Upland Subdivision of the Sonoran Desert (Brown 1994). This vegetative community is best represented on bajadas and mountainsides away from valley floors. A list of plant species found on the property is provided in section 3.4 of this document. Dominant plant species on-site include foothill palo verde (*Cercidium microphyllum*), saguaro cactus (*Cereus giganteus*), velvet mesquite (*Prosopis velutina*), ironwood (*Olneya tesota*), triangle leaf bursage (*Ambrosia deltoidea*), creosote bush (*Larrea tridentata*), and several species of cholla cacti (*Opuntia spp*).

Two general habitat types are represented on the Property and are described on the following pages. A schematic map of habitat types is provided in Figure 5 of the draft EA/HCP.

3.2.1.1 Xeroriparian Habitat

Xeroriparian habitat on the Property totals 129.57 acres. Vegetative cover in the washes that contain this habitat type is of a higher density than that found in the uplands. Species composition is similar to that of the adjacent uplands on site. The plants living along the washes are larger and more densely distributed as is typical in xeroriparian environments. Canopy trees along these washes are typically larger than those of the upland areas. The canopy species observed along these washes include ironwood, palo verde, velvet mesquite, and acacia (*Acacia spp.)*. The canopy closure and plant density of these

areas are much higher than those found in the uplands. The largest wash system of this type crosses the Property diagonally from the northeast to the southwest corners.

3.2.1.2 Arizona Upland Habitat

The Upland Palo Verde-Cacti-Mixed Scrub habitat on the Property totals 381.02 acres. Vegetative cover is of a lower density than that found in the xeroriparian areas. Species present in this habitat include saguaro cactus, prickly pear cactus (*Opuntia englemannii*), fish hook barrel cactus (*Ferocactus wizlizenii*), cholla, triangle leaf bursage, palo verde, ironwood, velvet mesquite, and acacia. This habitat type occurs in the interstitial spaces between the wash courses that transect the Property.

3.3 Wildlife

In general, wildlife on the Property is typical of that found in the Arizona Upland Subdivision of the Sonoran desertscrub biotic community with similar habitats. As with other vegetation communities in the southwestern United States, habitat values for breeding territorial bird species on the Property are expected to be positively correlated with the amount of vegetation (vegetation volume) (Mills et al. 1986). Of the habitat types identified on the Property (xeroriparian, upland), wildlife habitat values are expected to be highest in the xeroriparian habitat and lowest in the upland habitat. Common reptile and amphibian species observed or expected to occur on the subject parcel include diamondback rattlesnake (*Crotalus atrox*), gopher snake (*Pituophis melanoleucus*), tree lizard (*Urosaurus ornatus*), Gila monster (*Heloderma suspectum*), Couch's spadefoot toad (*Scaphiopus couchii*), and red-spotted toad (*Bufo punctatus*). Common bird species expected to occur include northern mockingbird (*Mimus polyglottos*), Gambel's quail (*Callipepla gambelii*), ash-throated flycatcher (*Myiarchus cinerascens*), cactus wren (*Campylorhynchus brunneicapillus*), black-throated sparrow (*Amphispiza bilineata*), Gila woodpecker (*Melanerpes uropygialis*), and verdin (*Auriparus flaviceps*). Common mammals expected to occur on the Property include desert cactus mouse (*Peromyscus eremicus*), desert cottontail (*Sylvilagus auduboni*), desert mule deer (*Odocoileus hemionus crooki*), javelina (*Tayassu tajacu*), and coyote (*Canis latrans*).

Listed, Proposed, Candidate, and Other Rare Species

The FWS has identified twenty species in Pima County listed as threatened or endangered (T&E species) under section 4 of the ESA, one proposed for listing, and three as candidate species. Two additional species are covered by a Conservation Agreement (FWS 2003). After reviewing the literature, it was determined that only the pygmy-owl and the lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*) are likely to occur on or near the Property. For the purposes of the HCP, only potential effects to these two

species will be discussed. The FWS list of T&E species in Pima County is provided in Appendix D of the draft EA/HCP.

In addition to T&E species, Pima County has identified fifty-six special status species for consideration in the Sonoran Desert Multiple Species Habitat Conservation Plan (SDMSHCP). The SDMSHCP is being prepared and is expected to be finished within the next few years. This multi-species habitat conservation effort was initiated by Pima County under section 10(a) of the ESA. After reviewing available information on these species, five have been identified as having the potential to occur on or near the Property. These species are: the gilded flicker (*Colaptes auratus; C. crysoides*), Abert's towhee (*Pipilo aberti*), Gila monster, desert tortoise (*Gopherus agassizzii*), and Tumamoc globeberry (*Tumamoca macdougalii*).

3.3.1 Cactus Ferruginous Pygmy-Owl

The ferruginous pygmy-owl is a small non-migratory neo-tropical owl found from Argentina to southern Arizona and Texas in the United States. The northernmost subspecies, the cactus ferruginous pygmy-owl, though described as common in Arizona early in this century, has declined since 1900 (Millsap and Johnson 1988). The best information available suggests that the Arizona population began to decline in the 1920s and by the 1950s was rare (Johnson, Glinski, Carothers and Kingsley 1999, unpublished manuscript). The Arizona Game and Fish Department (AGFD) classifies the pygmy-owl as a species of special concern (AGFD Wildlife of Special Concern in Arizona). The FWS listed the pygmy-owl as an endangered species in Arizona in 1997 (FWS 1997).

In the Tucson area, the pygmy-owl has historically been associated with Sonoran riparian deciduous woodlands, xeroriparian washes, and dense Sonoran desertscrub (FWS 2003). Survey efforts since 1993 have resulted in more recent sightings, many of which have been in northwest Tucson.

Ongoing surveys and monitoring conducted by AGFD, FWS, and private consultants have identified varying numbers of pygmy-owls from 1999 through 2002 (see Table 1). Most survey and monitoring work has concentrated in NW Tucson, the Altar Valley, and other areas where project clearance surveys are conducted. There are some areas of potential pygmy-owl habitat in Arizona have not been surveyed.

The pygmy-owl is known to exist in the state of Sonora, Mexico. Sonora is located across the international border from Arizona and is adjacent to habitat currently occupied by the pygmy-owl in the Altar Valley, Organ Pipe Cactus National Monument, and the Tohono O'odham Nation. Historical records indicate pygmy-owl occurrence in areas throughout Sonora (Flesch & Steidl 2000). Prior to 2000, the pygmy-owl was thought to be rare in northern Sonora, with only five verifiable records of occurrence north of 30º N Latitude between 1925 and 2000. In 2000 and 2001, the University of Arizona conducted surveys for pygmy-owls throughout Sonora. Their efforts indicate that pygmy-owls occur in Sonora in higher numbers than previously thought. Pygmy-owls were

documented throughout Sonora, with a number of pygmy-owls found in Arizona Upland habitat in the northern part of Sonora immediately adjacent to the international boundary (Flesch & Steidl 2000).

Little is known about the habitat needs of pygmy-owls in Arizona (Wilcox et al. 1999). In Arizona pygmy-owls have been known to occur in river bottom woodlands, woody thickets, Sonoran desertscrub, and semi-desert grasslands. The highest reported densities of pygmy-owls are in the northwest Tucson/southern Pinal County area and the Altar Valley (Abbate et al. 2000). Some pygmy-owls in the Altar Valley population occupy habitat somewhat different from habitat occupied by other known pygmy-owl populations in Arizona. Some pygmy-owls of this population occupy linear riparian and xeroriparian corridors in desert grasslands. They are found in pockets of mesquite, hackberry, and ash along the drainages. Saguaros are very rare or absent in this area. About half of the Altar Valley pygmy-owls occupy territories in a belt of Sonoran desertscrub habitat found at an elevation of 3000-4000 feet (Abbate et al. 2000). This area has the only significant concentrations of saguaro cacti in the Altar Valley. Other pygmy-owls in this population occupy transitional habitats between mesquite grassland and Sonoran desertscrub. The common element among the different habitats occupied by the pygmy-owl is dense vegetation and structural diversity with nearby trees and/or saguaros of sufficient size to contain nest cavities (FWS 1999). In selecting areas to establish home ranges, it may be that pygmy-owls take advantage of water (riparian and xeroriparian communities) and the associated benefits it provides when available, but its presence may not be necessary for successful nesting. It is possible that this preference is directly related to increased vegetation densities and prey availability associated with water sources such as washes and irrigation.

The best available information suggests that pygmy-owls in northwest Tucson occur in areas with some degree of urban development. Successful pygmy-owls nest sites are located in areas with land disturbance ranging from 16% to 54% (mean=33%) (AGFD, unpublished data). Partially developed environments may provide elements, such as the presence of water, thick vegetation, and abundant prey that mimic or replace riparian habitats, which have been seriously degraded in much of the pygmy-owl's documented former range in Arizona since the turn of the century. Table 1 depicts the total number of pygmy-owls reported by AGFD from 1993 to 2002.

TABLE 1

ARIZONA GAME AND FISH DEPARTMENT
CACTUS FERRUGINOUS PYGMY-OWL DEMOGRAPHICS 1993-2002
FOR PIMA AND PINAL COUNTIES, ARIZONA
(Unpublished Data)

NOTE: Data from sites investigated by Arizona Game and Fish and associates only. Detections by consultants or FWS records not confirmed by AGFD are not included. Also excluded are pygmy-owls that are known to occupy the Tohono O'odham Nation.

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002*	Mean
Total Adults Detected	1	3	6	11	5	11	37	30	38	29	14.4
Total Unpaired Males	0	0	1	7	1	3	7	10	9	12	5.0
Total Unpaired Females	0	0	0	0	0	0	1	1	1	4	0.7
Total Unpaired Unknown Sex	0	0	1	0	0	0	0	1	0	0	0.2
Total Undetermined Status	1	1	2	0	1	0	7	2	2	2	1.8
Total Active Nests	0	0	1	1	1	4	11	6	13	3	4.0
Total Successful Nests	_	_	1	1	1	4	10	5	10	3**	3.5
Total Failed Nests	_	_	0	0	0	0	0	1	2	0	0.3
Total Nests Outcome Unknown	_	_	0	0	0	0	1	0	1	0	0.2
Total Pre-Dispersal Occupied Sites	1	2	5	9	3	7	26	22	23	24	12.2
Total Post-Dispersal Occupied Sites	1	2	5	9	5	11	30	26	29	23	14.1
Total Fledglings**	_	_	1	2	4	16	32	20	27	9	11.1
Total pygmy-owl-Adult & Fledgling	1	3	7	13	9	27	69	50	65	38	28.2
Fledglings per Active Nest	_	_	1.00	2.00	4.00	2.90	2.90	3.33	2.08	3.00	2.77
Fledglings per Successful Nest	_	_	1.00	2.00	4.00	3.20	3.20	4.00	2.70	3.00	3.17

Total Known Fledglings for all years – 111 Means are simple arithmetic means.

* 2002 data collection still in progress and may be revised.

** Though considered successful, all fledglings from 2 nests did not survive after 8 days post-fledge.

*** The number of fledglings is from nest sites where outcome was known. Nestlings at 21 days or older were considered fledglings and these nests were documented as successful.

Unlike most owls, the pygmy-owl is primarily crepuscular and/or diurnal and can

often be heard calling throughout the daylight hours. These calls are most often uttered at dawn and dusk (Proudfoot and Johnson 2000). Calling activity is most common from late January though early June, with the peak calling period occurring between mid-February to mid-March (FWS 1999). Some calling activity has been observed in the fall during the months of September and October. Young of the year tend to respond more often in fall than territorial adults. AGFD researchers have found that pygmy-owl response rates during surveys drop off from mid-November to January. Spontaneous calling also appears to be more limited at this time. There is variation between individuals, and pygmy-owls hatched in a given year tend to call more frequently during the post breeding period.

CH for the pygmy-owl was proposed in November 2002 (FWS 2002). A total of 488,863 hectares (1,208,001 acres) of riverine and upland habitat in Pima and Pinal Counties were proposed for designation. The Property is located in proposed CH Unit 3, which covers 73,958 acres in northwest Tucson and southern Pinal County.

CH is defined in section 3 of the ESA as the specific areas within the geographic range occupied by species at the time it is listed on which are found features: (l) essential to the conservation of the species; (2) that may require special management consideration or protection; and (3) specific areas outside the geographic range occupied by the species at the time of its listing when these areas are determined essential for the conservation of the species.

In accordance with section 3(5)(A)(i) of the ESA and regulations at 50 CFR 424.12, in determining which areas to propose as CH, the FWS is to consider those physical and biological features that are determined to be essential to conservation of the species. These include, but are not limited to the following:

> Space for individual population growth and normal behavior;
>
> Food, water, air, light, minerals, or other nutritional or physiological requirements;
>
> Cover and shelter;
>
> Sites for breeding, reproduction, or rearing of young, germination, or seed dispersal; and
>
> Habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of the species.

The FWS has divided currently proposed CH into five units. The proposed Project is located within the northeast portion of Unit 3 (Figure 3 in the Draft EA/HCP). The five units were set up to provide a contiguous band of habitat linking currently occupied and historical pygmy-owl habitats from the Mexican

border northward in Arizona.

The primary constituent elements determined necessary for survival and recovery of the pygmy-owl (67 FR 71038) include: 1) elevations below 1,200 m (4,000 ft.) within the biotic communities of Sonoran riparian deciduous woodlands; Sonoran riparian scrubland; mesquite bosques; xeroriparian communities; tree-lined drainages in semidesert, Sonoran savanna, and mesquite grasslands; and the Arizona Upland and Lower Colorado River subdivisions of Sonoran desertscrub (see Brown 1994 for a description of vegetation communities); 2) nesting cavities located in trees including, but not limited to cottonwood, willow, ash, mesquite, palo verde, ironwood, and hackberry with a trunk diameter of 15 cm (6 in) or greater measured 1.4 m (4.5 ft.) from the ground, or large columnar cactus such as saguaro or organ pipe greater than 2.4 m (8 ft.); 3) multilayered vegetation (presence of canopy, mid-story, and ground cover) provided by trees and cacti in association with shrubs such as acacia, prickly pear, desert hackberry, graythorn, etc., and ground cover such as triangle-leaf bursage, burro weed, grasses, or annual plants; 4) vegetation providing mid-story and canopy level cover (this is provided primarily by trees greater than 2 m (6 ft.) in height) in a configuration and density compatible with pygmy-owl flight and dispersal behaviors; and 5) habitat elements configured and human activity levels minimized so that unimpeded use, based on pygmy-owl behavioral patterns (e.g. typical flight distances, activity level tolerance, etc.), can occur during dispersal and within home ranges (the total area used on an annual basis).

3.3.2 Site Specific pygmy-owl Occupancy Status

In 2000, the AGFD and the FWS informed TOA, Inc. and Exeter that portions of three known territories of individual pygmy-owls occur within or adjacent to the Property. The portions of the three pygmy-owl territories that extend into the Property total 76.6 acres, approximately 15% of the Property. In September 2000, a dispersing juvenile briefly occupied a portion of the Property. This individual pygmy-owl was outfitted with a radio transmitter as part of an ongoing AGFD study and set up an activity center in the northeast portion of the site. On November 3, 2000, Scott Richardson of AGFD contacted TOA, Inc. with information regarding the radio telemetered juvenile pygmy-owl that had been using a portion of the Property. An aerial telemetry survey had located an odd stationary signal from the transmitter emanating from an area just south of the Tucson Metro Water District easement on the Property. Signals of this nature can indicate that the pygmy-owl has died or shed its transmitter.

An AGFD biologist visited the Property with TOA, Inc. personnel at 12:30 p.m. on November 8, 2000. The telemetry signal was followed to a small ironwood tree south of the Tucson Metro Water District easement and west of Thornydale Road. The transmitter was located on the ground below the tree in association with a pack rat nest (*Neotoma spp.*) Damage to the unit indicated that the pygmy-owl might have succeeded in removing the transmitter. The antenna had a number of nicks consistent with a pygmy-owl pulling at the wire. The forward backpack harness had been frayed and severed on one side while the rear harness

was intact. If a raptor or mammalian predator had predated the pygmy-owl, it would be likely that the transmitter would be in much worse condition. In addition, no feathers or other pygmy-owl remains were found with the transmitter.

The transmitter's location in association with a pack rat nest makes it impossible to determine exactly where or how the unit was lost. Pack rats routinely collect items throughout their home range and transport them some distance to the nest. This indicates that the pygmy-owl may have shed its transmitter, or less likely, been predated upon some distance from the location where it was found. The ground surrounding the area was searched for evidence that could provide clues to the fate of the pygmy-owl. Special attention was paid to areas below large trees and cacti containing likely raptor feeding perches. No further evidence was found. AGFD's recommendation was that the area be considered occupied until focused surveys indicate that the pygmy-owl is no longer present.

An additional pygmy-owl dispersed across the property in 2000. The pygmy-owl was documented on the Project's southern boundary for one day prior to the transmitter going dead. This individual pygmy-owl subsequently established a territory outside of the Property.

Surveys conducted on the Property in 2001 resulted in four unconfirmed[2] detections on or immediately adjacent to the Property (see section 3.3.3 below). In August of 2001, a juvenile pygmy-owl dispersed across the northern edge of the Property. At the time of this writing, two of the three documented pygmy-owl territories that occur on the Property have become vacant. The status of the third territory is unknown and is presumed vacant. The current status of the activity center temporarily established by the dispersing juvenile in 2000 is also unknown and presumed vacant. Surveys conducted in 2002 resulted in one unconfirmed pygmy-owl detection in the vicinity of this activity center.

3.3.3 Site Specific Survey Efforts

TOA, Inc. surveyed the Property to determine presence/absence of the pygmy-owl in 2000. The surveys resulted in three separate detections of at least three pygmy-owls (Thomas Olsen Associates, Inc. 2000).

Survey protocol (methodology) developed by the FWS and AGFD in January 2000 was adopted for this effort. The portion of the Property not known to be occupied by pygmy-owls, approximately 443 acres, was surveyed three times during the spring 2000 survey period.

Surveys for the pygmy-owl were repeated during the 2001 survey season. One pygmy-owl was detected on the Property during the first round of surveys on

[2] A detection is confirmed when a) a pygmy-owl is seen; b) calling is vigorous and more than 10 notes; c) a second observer is able to confirm the detection.

January 17, 2001. This detection occurred near the area in which a pygmy-owl was detected in 2000. There were three more pygmy-owl detections on or adjacent to the northeast corner of the Property on March 28, April 4, and April 5, 2001. All of these detections were unconfirmed (Thomas Olsen Associates, Inc. 2001).

Surveys conducted in 2002 resulted in one unconfirmed pygmy-owl detection on June 22. This detection occurred on the Property boundary in the vicinity of the activity center established by a dispersing juvenile pygmy-owl in 2000. The detection occurred over 300 meters away from the planned Project (Thomas Olsen Associates, Inc. 2002). It is possible that this portion of the site is currently occupied by a pygmy-owl. However, AGFD researchers who visited the detection site do not believe that there is an active pygmy-owl nest site in the vicinity.

Surveys in 2003 failed to detect any individual pygmy-owls on the Property (Thomas Olsen Associates, Inc. 2003).

3.3.4 Lesser Long-Nosed Bat

The lesser long-nosed bat is a leaf-nosed bat characterized by an elongate muzzle, small leaf nose, and long tongue. Coloration is yellowish brown or gray above and cinnamon below. The tail is minute and appears to be lacking.

The lesser long-nosed bat (bat) is listed as endangered by the FWS (53 FR 38456). The AGFD lists it as a species of special concern (AGFD in prep). The species habitat in Arizona includes areas below 6000 feet in elevation within Cochise, Pima, Maricopa, Pinal, Graham, and Santa Cruz Counties. In Arizona the species is migratory. Pregnant females arrive in late April and early May and occupy maternity roosts located in caves and abandoned mines. At night they disperse to feed upon nectar and pollen of saguaros and other columnar cacti (Wilson 1985). In late July and early August the adult males arrive to join the females and young as they disperse to forage upon the nectar and pollen of agave flowers. This dispersal extends farther east and north into plant communities occurring at elevations higher than those used earlier in the season (Cockrum and Petryszyn 1991). By late September, the majority of the bats have left Arizona and returned to their winter range in Mexico. The closest known roost site is located approximately forty-five miles away from the Property.

There are no known records of this species' occurrence on or near the Property. Hoffmeister (1986) reports a record of the lesser long-nosed bat from approximately fifteen miles northeast of the Property. There are no known suitable roost sites on or near Property.

The lesser long-nosed bat is known to fly 80-100 kilometers a night while foraging (FWS 1995). Based on numerous studies documenting long distance commutes between day roost sites and foraging areas, Flemming concluded in the

recovery plan for the species, prepared in 1997, that the bats forage over long distances. For this reason it is possible that lesser long-nosed bats may occasionally use the Property for foraging or dispersal.

3.3.5 Pima County Special Status Species

3.3.5.1 Desert Tortoise

The desert tortoise (tortoise) is an herbivorous reptile inhabiting much of Arizona's southwestern Sonoran desert. The tortoises are known to occur in patches of the Tortolita Mountains north of the Property (Chris Klug, AGFD, pers. comm. September 15, 1999). The Sonoran Desert population of desert tortoise prefers rocky foothills where they find shelter in caves or burrows created under rocks and boulders. They are much less common in lower bajadas and desert grasslands. This species spends most of its life in burrows that provide constant protection against temperature extremes. In winter the tortoises hibernate singly or in communal dens. They emerge from hibernation in early spring when they are active primarily in mid-day. Tortoises in Arizona generally aestivate during the hot, dry period proceeding the summer monsoon season. With the onset of the monsoon, the tortoises re-emerge and peak activity occurs at this time. During this season they are active primarily at dawn and dusk.

Neither the species nor its sign has been observed on or immediately adjacent to the Property. The Property is approximately one and one-half miles from the Tortolita Mountains where the species is known to occur in the rocky habitat. Very little is known about the species' long-range dispersal. The Property lacks most of the elements of preferred desert tortoise habitat; thus the likelihood of its occurrence on the Property or the Project site is low.

3.3.5.2 Gilded Flicker

The gilded flicker has been identified by Pima County as a special status species. This species is one of three races of the northern flicker. The gilded flicker interbreeds with the red shafted and yellow-shafted races where the ranges overlap (The National Geographic Society 1987). These large, active birds inhabit cavities in saguaros and trees and have been observed by TOA, Inc. personnel on the Property.

3.3.5.3 Abert's Towhee

The Abert's towhee has been identified by Pima County as a special status species. This bird may be locally common within its range but is shy and secretive. It inhabits desert woodlands, streamside thickets, and suburban yards and orchards (The National Geographic Society 1987), and has been observed by TOA, Inc. personnel on the Property.

3.3.5.4 Gila Monster

The Gila monster is a large, heavy-bodied lizard that occupies the Sonoran desert and semi-desert grassland areas of southern Arizona. (Stebbins 1985). Its range and habitat preference largely coincides with that of the desert tortoise (Chris Klug, pers. comm. September 15, 1999). The Gila monster finds shelter in burrows it digs by itself or those of other small animals. It may also occupy woodrat nests or crevices under rocks. This animal is primarily nocturnal and feeds upon small mammals, invertebrates, reptiles, carrion, and the eggs of ground nesting birds. It responds to seasonal climate changes in much the same way as the desert tortoise. The Gila monster hibernates in winter and emerges as the temperature rises in the spring, followed by aestivation during the hot, dry months preceding the monsoon, and reemergence and peak activity during the summer rains.

TOA, Inc. personnel have not observed this species on the Property. The species would be expected to be most numerous in the same types of habitat occupied by the desert tortoise. It is possible that Gila monsters may occur on the Property.

3.3.5.5 Tumamoc Globeberry

The Tumamoc globeberry was originally listed by the FWS as an endangered species in 1986 (51 FR 15906). At the time of its listing there were only thirty isolated populations known in Pima County and five in Sonora, Mexico. Increased surveys conducted after its listing resulted in the identification of additional populations. The FWS de-listed the species in 1993 (58 FR 33562).

The Tumamoc globeberry is a perennial vine in the rattle gourd family. Plants are found under nurse trees or shrubs that provide structural support for the vines. The stems arise from a large tuber-like root. This species occupies a variety of desert habitats below 3000 feet elevation. Much of its habitat is remote desert and therefore unlikely to be threatened in the foreseeable future. No Tumamoc globeberry has been recorded on the Property.

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3.4 Property Species List

The following list represents individuals observed on the Property incidental to pygmy-owl surveys.

PLANTS

Blue palo verde *(Cercidium floridum)*
Canyon ragweed *(Ambrosia ambrusiodes)*
Catclaw acacia *(Acacia greggi)*
Cholla (spp.) *(Opuntia spp.)*
Creosote *(Larrea tridentate)*
Desert broom *(Baccharis sorothroides)*
Desert Christmas cactus *(Opuntia leptocaulis)*
Engleman hedgehog cactus *(Echinocereus englemannii)*
Ephedra *(Ephedra spp.)*
Fish hook barrel cactus *(Ferocactus wizlizenii)*
Foothill palo verde *(Cercidium microphyllum)*
Graythorn *(Ziziphus obtusifolia)*
Ironwood *(Olneya tesota)*
Ocotillo *(Fouquiria splendens)*
Prickly pear cactus *(Opuntia englemannii)*
Saguaro cactus *(Cereus giganteus)*
Thornbush *(Lycium spp.)*
Triangle leaf bursage *(Ambrosia deltoidea)*
Turpentine bush *(Ericamoria laricifolia)*
Velvet mesquite *(Prosopis velutina)*
Whitethorn acacia *(Acacia constricta)*

MAMMALS

Antelope ground squirrel *(Ammospermophilus harrisii)*
Black tailed jackrabbit *(Lepus californicus)*
Coyote *(Canis latrans)*
Desert cottontail *(Sylvilagus audubonii)*
Desert mule deer *(Odocoileus hemionus crooki)*
Javelina *(Tayassu tajacu)*
Woodrat *(Neotoma spp.)*

BIRDS

Abert's towhee *(Pipilo aberti)*
American goldfinch *(Carduelis tristis)*
Black-chinned sparrow *(Spizella atrogularis)*
Black-tailed gnatcatcher *(Polioptila melanura)*
Black-throated sparrow*(Amphispiza bilineata)*
Bronzed cowbird *(Molothrus aeneus)*
Cactus wren *(Campylorrhynchus brunneicapillus)*
Common raven *(Corvus corax)*
Coopers hawk *(Accipiter cooperii)*
Curve-billed thrasher *(Toxostoma curvirostre)*
Gambel's quail *(Callipepla gambelii)*
Gila woodpecker *(Melanerpes uropygialis)*
Great-horned owl *(Bubo virginianus)*
Horned lark *(Eremophila alpestris)*
House finch *(Carpodacus mexicanus)*
House wren *(Troglodytes aedon)*
Ladder-backed woodpecker *(Picoides scalaris)*
Lesser nighthawk *(Chordeiles acutipennis)*
Mourning dove *(Zenaida macroura)*
Northern cardinal *(Cardinalis cardinalis)*
Northern (Gilded) flicker *(Coloptes auratus)*
Northern harrier *(Circus cyaneus)*
Northern mockingbird *(Mimus polyglottos)*
Phainopepla *(Phainopepla nitens)*
Pyrrhuloxia *(Cardinalis sinuatus)*

BIRDS (Cont.)

Red-tailed hawk *(Buteo jamaicensis)*
Road runner *(Geococcyx californianus)*
Short-eared owl *(Asio flammeus)*

Turkey vulture *(Cathartes aura)*
White-winged dove *(Zenaida asiatica)*
Wilson's warbler *(Wilsonia pusilla)*

3.5 Jurisdictional Waters of the United States

In 2000 a delineation of Jurisdictional Waters of the United States was conducted on the Property. Drainages of sufficient size to be considered jurisdictional by the U.S. Army Corps of Engineers (Corps) were identified prior to field delineation. Data on width of ordinary high water, as well as upland and xeroriparian vegetation were collected on site. Each of the drainages identified as potentially jurisdictional was visited.

Nine drainages on the Property were recognized as Jurisdictional Waters of the United States. The Wetland Delineation Report subsequently determined that these washes are within the jurisdictional limits of section 404 of the Clean Water Act (CWA). This report has been forwarded to the Corps and is currently under review (Figure 4 of the draft EA/HCP).

3.6 Geology and Soils

The Property is located on the southern bajada on the Tortolita Mountains, and lies within the Basin and Range physiographic province. This physiographic province is characterized by numerous small mountain ranges that arise from broad, plain-like valleys or basins. The southern side of the Tortolita Mountains is composed of older surficial deposits (middle Pleistocene to latest Pliocene), alluvium with less abundant broken rock, and wind-formed deposits. Alluvial deposits of andesite and rhyolite fragments from the bedrock of the adjacent mountains (Chronic 1983) characterize the northwest Tucson area. Soils on the Property are predominately sandy loams, caliche,

gravels, and rocks smaller than six inches. Several drainages bisect the Property, flowing from northeast to southwest creating an undulating topography. Elevations within the Property range from approximately 2540 feet above mean sea level (amsl) along the eastern border to approximately 2660 feet amsl on the western border.

3.7 Land Use

The Property is presently vacant open space. A limited amount of pedestrian and equestrian recreational use occurs on the Property. Low-density residential development occurs to the south and west of the Property. Undeveloped state trust lands are located to the east of the Property. Undeveloped private land and low-density housing occur to the north of the Property.

3.8 Water Resources

There are presently no water resources on the property and there are no wells within 100 feet of the Property. Municipal water is available by connecting to Tucson Water mains on Thornydale Road or on Naranja Drive.

3.9 Air Quality

Air quality on the Property is typical for this portion of the Tucson basin. The Property is located in an area that the Pima County Department of Air Quality has classified as the Rillito non-attainment area for PM^{10} (Pima County Ordinance 1993-128 § 2, 1993). In addition, the Property is located within a Class II attainment area for SO_2, NO_2, and O_3, and in an unclassified area for CO (R. Gramaldi, PCDEQ, pers. comm.).

3.10 Water Quality

Water available to the Property is municipal water supplied by Tucson Water. The quality of this water is in accordance with standards set by the Environmental Protection Agency.

3.11 Cultural Resources

The Property was examined for cultural resources for the first time in 1981. One known site occurs on the Property. The site was recorded as AZ AA: 12: 200 (ASM). It is located in the southwest area of the Property, approximately 24 meters north of the southern Property boundary. An additional archeological survey was conducted on the Property in 2001/2002. No additional sites were documented during the 2001/2002 surveys. Site AZ AA: 12: 200 (ASM) was revisited during the resurvey of the Property. Erosional processes over the last 20 years have degraded the existing uncollected artifacts and have not unearthed additional materials. The information on this site was fully recorded in 1981. As a consequence, no important cultural materials more than 50 years old remain on the Property. Accordingly, there are no significant cultural resources

on the Property (Enviro Engineering 2001). A copy of the most recent cultural resources survey is found in Appendix B of the draft EA/HCP.

3.12 Socioeconomic

The Pima Association of Government's web page (www.pagnet.org) presents demographic information from the 2000 censes for tract 46.34. The Property is located within the five to six square mile area. Of the 1,015 people living within the tract, 87 % are White, 9.2 % are Hispanic. The median income is $24,282 per capita and $61,818 per family. Seventy-four percent of the residents are salaried or wage earners, while 18 % are government employees. There is 3.2 % unemployment in the Town of Marana and 4.5 % in Pima County. Just over 93 % live in single-family homes and the average cost of a home in the tract is $182,000. Marana's economic base is one of service and recreation. There are over 2,000 acres zoned for industrial development near the freeway, but none within five miles of the Property.

4.0 ALTERNATIVES CONSIDERED INCLUDING THE PROPOSED ACTION

This section discusses details of the proposed action and other alternatives considered. These alternatives include: Alternative 1: Preferred Alternative and Proposed Design; Alternative 2: Modification of the Project Design; and Alternative 3: No Action Alternative.

4.1 Alternative 1: Preferred Alternative and Proposed Design

The Preferred Alternative is the proposed construction of residential development on 103 acres of the 512-acre Property. The Applicant and the FWS consider implementation of the HCP in connection with a Permit, if approved, to be an appropriate means to reconcile the Project with the ESA section 9 prohibition against take of the pygmy-owl. The Plan for Development of the Project within the Skyranch Land Use Plan relies on a unique conceptual approach to residential development that conserves significant wildlife habitat. The Skyranch Land Use Plan was developed in conformance with the Town of Marana's General Plan and the FWS Landowner Guidance for development inside pygmy-owl habitat areas. The location of the residential areas within the context of habitat conservation creates an exciting opportunity for the proposed Project. It is hoped that this proposed development will become an example of land stewardship that adheres to the applicable stringent guidelines set forth by the FWS for pygmy-owl protection, thereby encouraging other developments within areas that had been, and may again be identified pygmy-owl CH areas, to adopt similar practices.

The Skyranch Land Use Plan is depicted in Figure 6 of the draft EA/HCP. The proposed land use includes two designations. Under the conditions outlined in section 7.2.1.1 of the draft EA/HCP, the total area planned for development under the Project encompasses 20% to22% of the Property. Residential development will be concentrated in two areas: the western portion of the Property and a smaller area along the southeastern edge of the Property. There is a small area (200' x 160') reserved for a water reservoir. In addition,

a small amount of land may be disturbed to provide utilities. These areas are the only areas where grading will take place. The total area to be graded constitutes the Project. The area to be graded is planned for 20% and will not exceed 22% of the Property. The utility easements will be linear in nature and restored to their natural state after installation. The open space at Skyranch encompasses 80% of the Property and includes open space in and around the residential areas as well as an open space corridor between residential areas. The design layout for the Preferred Alternative is depicted in Figure 6 of the draft EA/HCP.

The Applicant believes it has outlined appropriate measures within the HCP to minimize the potential for take of any pygmy-owl. The Project has been configured to avoid the areas within historically occupied pygmy-owl breeding territories. Nevertheless, it is possible that a pygmy-owl may in the future occupy currently unoccupied areas of the Property or adjacent areas for nesting, or as an activity center during construction or operation of the Project during the Permit term. It is also possible that despite the protective provisions incorporated in the HCP, if such occupation of the Project or an area near the Project were to occur, the construction or operations of the Project could harm or harass the pygmy-owl. The HCP contains measures that are proposed to mitigate for those potential impacts to the maximum extent practicable through two principal measures:

> Pygmy-owl Habitat Management Reserve: In accordance with FWS recommendations, the Applicant will only develop 103 to 113 acres (20 to 22%) (subject to the conditions outlined in section 7.2.1.1) of the Property. The remaining 399 to 409 acres (80%) will be preserved in perpetuity in its natural state as a pygmy-owl Habitat Management Reserve (Reserve).
>
> Contingency Measures: The Applicant has incorporated into the HCP contingency measures in the event that a pygmy-owl establishes a new nest or activity center on or within 600 meters of the Project area.

4.2 Alternative 2: Modification of the Project Design

Exeter has considered a Modified Project Design that would consist of 74 acres of production lots, 16 acres of estate lots, 10.9 acres of multi-family housing, and 1.5 acres of commercial development. This project design was created in compliance with the FWS Landowner Guidance for development inside pygmy-owl habitat areas. In order to achieve a Site Disturbance Ratio of no more than 20%, the land use plan stipulates that the estate lots be sold with deed restrictions limiting ground disturbance to a 21,000 square foot development pad. The area outside the permitted building envelope would remain vegetated in its natural state. In informal discussions between the FWS and Exeter, the FWS expressed concern over potential difficulties in maintaining the integrity of portions of the Reserve that lie within the boundaries of deeded estate lots. Multi-family and commercial acres also have the potential to impact the pygmy-owl to a greater extent than single-family homes. Therefore, this alternative was considered non-practicable. The design layout for Alternative 2 is depicted in Figure 7.

4.3 Alternative 3: No Action Alternative

A No Action Alternative would not disturb portions of the Property proposed for development and would not result in any potential take of the pygmy-owl or modification of pygmy-owl habitat. The Property is privately held and therefore subject to the economic pressures of maintenance, taxation, and liability. The sale of the Property for purposes other than development is not economically feasible. The owners of the Property are unable to economically justify the continued costs of maintaining the Property without a reasonable economic return. Therefore, this alternative was considered non-practicable under current and foreseeable circumstances.

5.0 ENVIRONMENTAL CONSEQUENCES

The FWS identified sensitive species and habitat(s) to be addressed in analysis of the Project. Potential effects to the sensitive species shown on the following pages were analyzed as part of the Project. The pygmy-owl is the only federally threatened or endangered species likely to be affected by the Project.

5.1 Alternative 1: Preferred Alternative and Proposed Design

5.1.1 On-site Impacts

5.1.1.1 Vegetation

The residential development of the Preferred Alternative will directly impact 103 acres of native Sonoran desertscrub. Natural vegetation in development areas will be removed and replaced with single-family homes and utilities. The residential development will be landscaped consistent with a desert theme, incorporating plant materials indigenous to the Sonoran Desert. Four hundred nine (409) acres of the 512-acre Property, or eighty percent (80%) of the Property will be preserved as a Reserve**.** Spine washes bisecting the Property from northeast to southwest will be preserved except for a single road crossing. Vegetation salvage plans for development areas will substantially reduce impact to vegetation. Development would occur where vegetation consists primarily of upland Sonoran desertscrub. Existing native vegetation will be maintained in development areas to the maximum extent practicable.

5.1.1.2 Wildlife

Wildlife within those areas planned for development would be displaced to adjacent areas during the construction process. Following construction, landscape vegetation and preserved trees would provide habitat for those species tolerant of suburban and urban development. Direct and indirect effects of development may result in negative or positive impacts to the populations of some wildlife species. Populations of some suburban adapted species are likely to increase because of increases in availability of food near proposed development areas and their preference for, or tolerance of, developed areas. The specific on-site impacts for the sensitive species considered in this document are presented below.

5.1.1.3 Listed, Proposed, and Candidate Species

Cactus Ferruginous Pygmy-Owl

Through development, the Project will directly affect 103 acres of Arizona upland habitat. A small area of xeroriparian habitat may be affected by construction of an internal access road, which will cross the washes at several points. In addition, a limited amount of habitat may be temporarily disturbed to provide utility access. All areas disturbed for the purposes of the installation of utilities will be restored to their natural state. The remainder of the xeroriparian wash habitat on the Property will be maintained as open space.

TOA, Inc. conducted approximately 43 hours of pygmy-owl presence/absence surveys in 2000 throughout the portions of the Property unoccupied by any pygmy-owl. TOA, Inc. detected no additional individuals of the species outside of known pygmy-owl territories. The pygmy-owls detected during focused surveys were members of known pygmy-owl pairs whose territories are centered outside of the Property. In 2001, TOA, Inc. conducted an additional 45 hours of surveys on the Property. These surveys resulted in one unconfirmed detection on the Property in an area within a known pygmy-owl territory. AGFD documented two juvenile pygmy-owls dispersing across the Property in August 2001. Ongoing surveys in 2002 and 2003 failed to detect any pygmy-owls. Two of the three original pygmy-owl territories on the Property are thought to be unoccupied as of this writing. The status of the third territory is unknown and presumed vacant. The status of the activity center established by a dispersing juvenile in 2002 is also unknown and presumed vacant. The land use plan developed by the Applicant avoids those portions of known historical pygmy-owl home ranges that extend into the Property. All areas to be mass graded by the Permittee

are located outside of documented presently or historically occupied pygmy-owl breeding habitat. In the listing package for the pygmy-owl, the FWS stated that the clearing of unoccupied pygmy-owl habitat does not constitute take as defined in section 9 of the ESA (62 Federal Register 10730). The conservation measures outlined within the HCP have been designed to ensure that the implementation of the project will minimize and mitigate to the maximum extent practicable any adverse effects on the pygmy-owl.

The Property consists of 512 acres of proposed pygmy-owl Critical Habitat. The Development Plan for the Property includes 103 acres of habitat to be developed as residential property in the Project and 409 acres of habitat to be preserved as natural open space in the Reserve.

Development of the Project will result in the modification of (103) acres of proposed CH. This represents .0001% of the total acreage of proposed pygmy-owl CH, and .14% of the total acreage within Unit 3 of proposed CH. The stated recovery goal for preservation of CH in recovery Unit 3 is an aggregate of 20% disturbance. The area of proposed CH to be modified by development of the Project will result in a statistically insignificant decrease in the amount of potential and suitable habitat for the species (section 3.3.1). The size of the impact alone is not enough to determine whether adverse modification of critical habitat will occur. The location of the impact within the critical habitat unit also determines the extent of the impact. Even if the impact is small in size, if it occurs in an important or constrained area, the magnitude of the impact is increased. The Project's area of disturbance is within the recovery goals for the pygmy-owl. The Project also occurs in a very important area within CH Unit 3, as indicated by its occupancy and dispersal history.

The Project does incorporate measures to reduce the effects to proposed critical habitat. As part of the Project, 409 acres of the Property will remain natural open space in the Reserve. This open space follows and provides linkage to xeroriparian wash corridors that traverse the Property. The undisturbed open space will preserve nearly 100% of the xeroriparian habitat on site. There is one xeroriparian wash corridor that will be crossed by an access road. At the recommendation of AGFD and the FWS, the vegetation on either side of this road crossing will be enhanced by the Permittee or Reserve management entity to avoid disrupting the dispersal of pygmy-owls or other wildlife. Xeroriparian and adjacent upland areas set aside will provide linkages among undeveloped habitats on all sides of the Property. The vegetation preserved within these open spaces will provide habitat for both resident and transient pygmy-owls. Pygmy-owls have been known to occupy and disperse along linear

xeroriparian habitats (Abbate et al. 2000). The preservation of the Reserve is important in light of ongoing development in adjacent areas and will contribute to the maintenance of nesting and dispersal habitat.

The Reserve includes three dispersal corridors (Figure 6 of the draft EA/HCP). The primary dispersal corridor is located in the center of the Property and has a width of 1270 to 2583 feet. A secondary dispersal corridor is located along a wash between the central and western development area of the Project. This corridor has a minimum width of 300 feet. The development plan for the Project has been designed to accommodate potential pygmy-owl dispersal along the south end of Tangerine Road with a buffer area of 300 feet at its narrowest point. The development of the Project will result in removal of dispersal habitat and the construction of structures that are not conducive to dispersal, but the establishment of the Reserve will maintain dispersal options for the pygmy-owl.

Lesser Long-Nosed Bat

There are no known roost sites for the lesser long-nosed bat in the vicinity of the Property. This species forages widely, thus it is remotely possible that implementation of the Project may affect foraging areas. Existing plant-salvage statutes will offset the potential loss of forage species (saguaro cacti). There are numerous potential foraging areas closer to known roosting areas. While the loss of some saguaros represents a potential impact to the lesser long-nosed bat, saguaro salvage and replacement measures will render such impacts insignificant.

Desert Tortoise

Effects to individual desert tortoise resulting from the implementation of the Preferred Alternative are remotely possible. As there are no boulder strewn areas or washes with caves on the Property, desert tortoises are expected to be rare or absent on the Property. However, it is remotely possible that a small number of individuals will be directly affected by construction activities. On-site monitors will reduce the likelihood of direct impacts to desert tortoises. If a desert tortoise is discovered on the site during the construction phase of the Project, the AGFD tortoise handling guidelines will be adhered to (see Appendix 1). This should reduce the occurrence of any significant direct effects to the tortoise.

Gila Monster

Gila monster habitat requirements and preferences are very similar to

those of the desert tortoise. It is remotely possible that a small number of individuals will be directly affected by construction activities. On-site monitors will reduce the likelihood of direct impacts to gila monsters. If a gila monster is discovered on the site during the construction phase of the Project, the AGFD guidelines for desert tortoise should also be used for gila monsters (see Appendix 1). This should reduce the occurrence of any significant direct effects to the gila monster.

Gilded Flicker

The gilded flicker is widespread in Pima County, but is less common than gila woodpeckers in both rural and suburban habitats. Though some individual birds may be affected, primarily through the loss of saguaros, no population level effects are anticipated. Cavity inspections and saguaro protection and salvage measures should reduce the direct impacts to gilded flickers.

Abert's Towhee

The Abert's towhee can be locally common throughout its range though is thought by some to be declining in Pima County. This bird seems to adapt well to suburban development and is a common backyard bird in Phoenix (Tom Gatz, FWS, pers. comm.) and northwest Tucson (M. Cross, personal observation). Although some individual birds may be affected, no population level effects are anticipated. The inclusion of the xeroriparian areas within the Reserve should help reduce direct impacts to Abert's Towhees.

Tumamoc Globeberry

Effects upon individual Tumamoc globeberries may occur during the implementation of the Project. This species was de-listed by the FWS. Sufficient populations exist in remote areas throughout the region to ensure that the development of the Preferred Alternative will not have any population-level effects upon the Tumamoc globeberry.

5.1.1.4 Wetlands

No wetlands are expected to be disturbed as a result of the Preferred Alternative; thus, no direct effects to wetlands are expected.

5.1.1.5 Geology and Soils

Direct impacts to geologic features and soils as a result of the Preferred Alternative are expected to be minor, limited to only 20% of the Property.

5.1.1.6 Land Use

The Preferred Alternative would contribute to the conversion of undeveloped land in Pima County. However, the proposed Reserve would also insure that 80% of the Property would be preserved and managed for the benefit of the pygmy-owl in perpetuity.

5.1.1.7 Water Resources

The Preferred Alternative would contribute to the overall demand for water resources in the greater Marana area. Minor effects to local hydrology may occur from an increase in impervious surfaces and road/utility crossings.

5.1.1.8 Jurisdictional Waters of the United States

Of the nine drainages identified on the Property as being jurisdictional, eight will be left undisturbed and one will be impacted. Impacts to waters of the United States will consist of a single road crossing. Total impact to Jurisdictional Waters of the United States will be less than one acre. A CWA section 404 nationwide permit will be obtained.

5.1.1.9 Air Quality

Construction of the Project will result in minor, short-term impacts to air quality. An increase in particulate matter can be anticipated as a consequence of soil disturbance and operation of heavy equipment during roadway construction. These impacts are short-term in nature and will be minimized by standard dust and erosion control practices, such as hay bales, and other erosion barriers to control soil erosion, and use of water trucks to minimize fugitive dust emissions. Paved roads within developed areas will, in the long-term, reduce particulate emissions. There will be an increase in vehicle emissions due to increased traffic from future homeowners and service vehicles associated with the Project. Ultimately, landscaping and development of the parcel as a residential community is expected to reduce dust emissions below current levels.

The Preferred Alternative would contribute to the degradation, although minimal, of air quality in Pima County, primarily through an increase in automobile emissions.

5.1.1.10 Water Quality

The Preferred Alternative may result in an increase in levels of pollutants in storm water runoff that may add to that produced by other existing or planned developments in the region. Adherence to local and federal regulations will minimize the potential for increased levels of pollutants in storm water runoff.

5.1.1.11 Cultural Resources

No direct impacts to significant cultural resources are expected from completion of the Preferred Alternative. The prehistoric site known to occur on site will be within the Reserve.

5.1.1.12 Socioeconomic

The Preferred Alternative would increase the population of the area. The Project would not displace anyone living in the area and should not materially impact the present ratio of minority races living near the site or in Pima County. As there are no commercial or manufacturing elements to the Project, only maintenance and service jobs may result.

5.1.2 Indirect Effects

NEPA defines indirect effects as those that are "caused by the action and are later in time or farther removed in distance, but are reasonably foreseeable" (40 CFR 1508.8). Indirect effects may include growth inducing effects and other effects related to induced change in the pattern of land use, population density or growth rate, and related effects on air, water, and other systems including ecosystems.

5.1.2.1 Vegetation

There is the potential for residents of the Skyranch project to introduce exotic vegetation species. This can result in such species out-competing native vegetation, or changing the fire regime to the detriment of native species. Proposed measures related to the use of native vegetation in landscaping should reduce the likelihood of the occurrence of exotic vegetation.

5.1.2.2 Wildlife

Wildlife within those areas planned for development would largely be displaced to adjacent areas within the Reserve or off the Property during the construction process. Following construction, landscape vegetation and preserved trees would provide habitat for those species tolerant of suburban and urban development. Some species benefit

while others will move out of the area to be developed. Due to potential indirect effects of urbanization there may be an increase of some problem animals such as domestic cats and European starlings (*Sturnus vulgaris*). Free roaming cats are known predators of native wildlife. European starlings may compete with cavity nesting birds for available nest sites. Increased traffic and roadways will contribute to increase road mortality of wildlife. Educational outreach proposed by the Applicant should help to reduce the occurrence of these impacts.

5.1.2.3 Listed, Proposed, and Candidate Species

Cactus Ferruginous Pygmy-Owl

Potential indirect impacts to pygmy-owls include:

- Changes in vegetation structure downstream of the Project area as a result of modifications of surface-water hydrology;
- Increases in traffic associated with increased population levels causing increased traffic noise adjacent to existing roads reducing habitat suitability and an increased potential for mortality due to vehicle collisions;
- Increased starling densities associated with increased development within the Project vicinity;
- Increased potential for mortality resulting from collisions with windows, fences, etc.;
- Increased potential for mortality from cats and other domestic pets; and
- Increased potential for mortality from secondary poisoning due to increased toxins in the environment.

Each of these is discussed in more detail below:

Development will increase the impervious surface area and decrease the time concentration for storm water runoff. However, an on-site storm water management plan will be developed in compliance with applicable local regulation, that includes specific requirements for storm water detention/retention to control the peak discharge. Implementation of the plan will ensure collection and release of runoff commensurate with current local drainage ordinances. This will maintain the peak of the hydrograph within downstream drainages to a level commensurate with existing natural levels. It will prolong the duration of the hydrograph at the discharge point, increasing available water to these natural arroyo systems and potentially increasing the biomass of vegetation associated with these downstream areas.

Increased population levels will result in increased vehicle trips per day on streets serving the Property, elevating noise levels adjacent to existing roadways. Elevated noise levels will vary throughout the day and correspond to the regular fluctuations in traffic patterns. Levels are not anticipated to increase to a magnitude that would require noise mitigation based on impacts to sensitive human receptors. Noise effects will be localized along major arterial roadways and will not broadly affect the surrounding area on or off the Property.

The Applicant is unaware of any data that suggest pygmy-owls are adversely impacted from gradual increases of noise levels such as those associated with daily traffic fluctuations. Expected levels of disturbance from gradual increases in traffic loads will be part of the background noise levels and will not be a disruptive, sustained noise disturbance.

Increased vehicle trips per day will result in a corresponding increased potential for pygmy-owl road mortality. We are unaware of any instances of pygmy-owl mortality due to vehicle collisions in northwest Tucson. However, there is evidence that pygmy-owls in northwest Tucson may avoid major thoroughfares during periods of high traffic volume (FWS 2003).

The FWS referenced AGFD's concerns (62 FR 46 10744) that increasing competition with exotic European starling for nest cavities may be a threat to cavity nesters like the pygmy-owl. To our knowledge there has been no systematic study to determine if the presence of starlings, in addition to other native cavity nesters, appreciably limits available nest sites resulting in population level effects on the pygmy-owl.

Development of the Project may result in the increased potential for pygmy-owl mortality resulting from collisions with fences and windows. However, this potential will be minimized due to the fact that all development will be clustered within discrete areas outside of the Reserve. A perimeter fence will surround these areas of the Project. This perimeter fence will be constructed in a manner consistent with FWS recommendations in order to minimize the potential for accidental pygmy-owl mortality. Pygmy-owls are not known to enter high-density developments similar to the Project. Therefore, there is little potential for pygmy-owl mortality due to collisions with windows.

The increased potential for mortality from cats and other domestic animals will be addressed by a public education and awareness program for residents within and adjacent to the Property that are

intended to reduce or eliminate free-roaming cats and other potentially harmful domestic animals. This education program will also provide information to the public related to the hazards of secondary poisonings due to increased toxins in the environment. If such hazards are reported, the FWS will be immediately notified and appropriate corrective actions will be implemented.

Lesser Long-Nosed Bat

There is evidence that hummingbird feeders in residential areas can cause nectar feeding bats to remain longer in the area than they normally would prior to migration. This has resulted in the mortality of these bats due to cold temperatures. It is unlikely that the Skyranch Project would result in significant indirect effects of this nature, but the issue could be an item of discussion in the public outreach and education program. This issue also affects hummingbirds.

Desert Tortoise

As previously stated, the potential for the desert tortoise to occur on the Property is low (see section 5.1.1.3 above). Any desert tortoise that may occur on the Property may be impacted through collection and/or road mortality. Public education and outreach would help to reduce the occurrence of such impacts.

Gila Monster

Gila monster habitat requirements and preferences are very similar to those of the desert tortoise. Thus, the potential for Gila monsters to occur on the Property is low. Any Gila monsters that may occur on the Property may be impacted through illegal collection, and/or road mortality. Public education and outreach would help to reduce the occurrence of such impacts.

Gilded Flicker

The indirect effects associated with the pygmy-owl also apply to this species.

Abert’s Towhee

Cat predation and window strikes are potential indirect effects on Abert's Towhees. Public education and outreach would help to reduce the occurrence of such impacts.

Tumamoc Globeberry

Indirect effects to this species would be similar to those described for Vegetation in 5.1.2.1 above.

5.1.3 Cumulative Effects

This section considers the past, present, and future projects, authorized or under review that are considered to contribute to the cumulative impacts on not only endangered, threatened, and other rare species, but also on society and the human environment in Pima County.

5.1.3.1 Vegetation

The Preferred Alternative would result in disturbance of the Sonoran desertscrub, it will contribute slightly to the loss of this vegetation type in Pima County. Impacts to adjacent vegetation communities have already, or will in the near future, occur as a result of several developments including Section 36, Copper Mountain, Church of the Apostles, Tangerine Crossing, Sombra de Tecolote, Tangerine Hills, Tortolita Vistas, Tangerine/Thornydale intersection improvement, and numerous single-family residences. However, permanent protection of 409 acres of native vegetation in the Reserve will contribute to the perpetual protection of the native plant communities in the area. The 409 acres will be managed as a Reserve in a manner beneficial to the pygmy-owl and other native species, and will contribute to the function of these vegetation communities.

5.1.3.2 Wildlife

The Preferred Alternative would contribute to a cumulative reduction of habitat for some wildlife species intolerant of human disturbance or presence when added to impacts resulting from other development, road construction, and other types of land use projects in the vicinity. Wildlife species associated with urban and suburban settings would likely increase, while species intolerant of development may locally decrease. However, protecting the native plant and animal communities on the 409-acre Reserve will contribute to the perpetual protection of native wildlife populations both on and off the Property.

5.1.3.3 Listed, Proposed, and Candidate Species

Cactus Ferruginous Pygmy-Owl

The Skyranch Project area is extremely important to the pygmy-owl. The occupancy and dispersal history in this area are evidence of the key role that this area plays in the maintenance of this metapopulation. The direct and indirect effects associated with this project are also occurring, or will occur in the near future, on adjacent areas of habitat within the projects such as Section 36, Copper Mountain Church, Church of the Apostles, Tangerine Crossing, Sombra de Tecolote, Tangerine Hills, Tortolita Vistas, Tangerine/Thornydale intersection improvement, and numerous single-family residences. Ongoing loss and fragmentation of pygmy-owl habitat is occurring all around the Skyranch Project. Ongoing growth in Marana and Pima County is expected to drive additional urban expansion into pygmy-owl habitat. A number of large-scale HCPs are under development in the vicinity of Skyranch. While these planning efforts are expected to have associated minimization and mitigation measures associated with them, they will, nonetheless, contribute to the cumulative effects to pygmy-owls and their habitat in this area. A reduction in the contribution to cumulative effects by this Project has been accomplished through areas of protected open space that will provide opportunities for nesting and connectivity. Implementation of the Preferred Alternative will have reduced cumulative adverse effects on the pygmy-owl because of the conservation measures, which will be implemented to maintain nesting and dispersal habitat.

Lesser Long-Nosed Bat

As described above, a number of projects have or will occur in the vicinity the Skyranch Project that will contribute to the loss of forage plants (saguaros). The proposed saguaro protection and salvage measures will reduce the contribution of this project to these cumulative effects.

5.1.3.4 Wetlands

No wetlands are expected to be disturbed as a result of the Preferred Alternative; thus, no cumulative impacts to wetlands are expected.

5.1.3.5 Geology and Soils

This Project will contribute to ongoing development of the area resulting in cumulative impacts to geologic features and soils. Such impacts will be reduced as only 20% of the Property will be developed.

5.1.3.6 Land Use

The Preferred Alternative would contribute to the on-going conversion of undeveloped land to developed land in Pima County. However, the proposed reserve would also ensure that a significant portion of the proposed pygmy-owl CH on-site is preserved and managed, in perpetuity, for the express purpose of pygmy-owl conservation. Increasing the number of residents in this area is likely to contribute to future commercial development in the vicinity, as well as new or expanded road infrastructure.

5.1.3.7 Water Resources

The Preferred Alternative would contribute to the overall demand for water resources in the greater Marana area.

5.1.3.8 Air Quality

The Preferred Alternative would contribute to the cumulative degradation of air quality in Pima County, primarily through an increase in automobile emissions.

5.1.3.9 Water Quality

The Preferred Alternative may result in an increase in levels of pollutants in storm water runoff that may add to that produced by other existing or planned developments in the region. Adherence to local and federal regulations will minimize the potential for increased levels of pollutants in storm water runoff.

5.1.3.10 Cultural Resources

No cumulative impacts to significant cultural resources are expected from completion of the Preferred Alternative.

5.1.3.11 Socioeconomic

The Preferred Alternative would contribute to an increase in population, property values, and traffic in Pima County. It is possible that the Project will increase the number of jobs available in Pima County. Since the Property is currently unoccupied, there would be no negative impacts to minority or economically disadvantaged communities on the Property and therefore, no environmental justice issues are anticipated.

5.1.4 Assessment of Take

The Property consists of 512 acres of identified pygmy-owl habitat. The Development Plan for the Property includes 103 acres of habitat to be developed as residential property and 409 acres preserved as natural open space in the reserve. The Property contains portions of four previously, but not currently, occupied territories. In addition, data shows pygmy-owls dispersing through the Property. As incidental take in the form of harm or harassment is anticipated to occur on the Property during construction and operation of the Project, the incidental take to be addressed by the Permit will be:

- Two (2) non-breeding pygmy-owls the first year of construction;
- One (1) non-breeding pygmy-owl the second year of construction;
- One (1) non-breeding pygmy-owl the last two years of construction and for the remainder of the permit;
- The above anticipated take is not cumulative, but instead, what is likely to occur in the specific year or years identified above.

Thus, for example, if two dispersing owls are not detected on the Property the first year, the Applicant will not be covered for any additional take other than what is stated above for subsequent years.

Pursuant to 50 CFR 17.3, "Harass" in the definition of "take" in the Act means an intentional or negligent act or omission that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. pygmy-owls behavioral patterns could be disrupted from activities and subsequent human occupation of the development associated with the Project. Also pursuant to 50 CFR 17.3, "Harm" in the definition of "take" in the Act means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

The following are examples of activities that could disrupt normal pygmy-owls behavioral patterns that the FWS indicates may constitute harm or harassment.

Increased noise levels may appreciably disrupt normal behavior patterns such as dispersal. The construction of the residential development will be a relatively short-term event, with a foreseeable end in noise disturbance activities (within approximately five years, at most). It is unknown whether noise habituation occurs in some pygmy-owls as it does with other bird species, but dispersing pygmy-owls would likely have no opportunity for habituation as the selection of habitat would be an immediate choice. Thus, harm or harassment of a dispersing juvenile is more likely than that of a resident pygmy-owl.

Although they are considered crepuscular/diurnal raptors, lighting used for construction purposes could disrupt normal behavior patterns such as roosting, calling, and feeding. Adherence to the guidelines outlined in section 7.2.1.1 will minimize the potential for this to occur.

Precluding the establishment of a territory due to construction activities and the screening of saguaro cavities also affects the ability of pygmy-owls to carry out normal breeding behavior. Impacts to prey availability as a result of project development affects the ability of pygmy-owls to feed. None of these effects are likely to cause lethal take, but certainly establish the need for an Permit.

Lesser Long-Nosed Bat

There are no known roost sites for this species in the vicinity of the Property. The nearest known maternity roost sites are the Old Mammon Mine (45 miles away), Copper Mountain Mine (100 miles away), and Bluebird Mine (112 miles away). Other major non-maternity roost sites for this species are located at the Cave of Bells (southeastern Pima County) and the Patagonia Bat Cave. These non-maternity roost sites are 63 miles and 40 miles away from the Property, respectively (Westland Resources, 2000). This species forages widely, thus it is possible that implementation of the Project may affect some foraging areas. Existing plant-salvage statutes will offset the potential loss of forage species. The numerous potential foraging areas closer to known roosting areas, make the likelihood of take remote.

5.1.5 Off-site Impacts

5.1.5.1 Vegetation

Some off-site impacts to vegetation will occur as a result of the installation of off-site utilities and roadway improvements. Mitigation proposed as part of the Preferred Alternative is expected to mitigate these impacts and provide greater protection of plant communities contained in the 409-acre Reserve.

5.1.5.2 Wildlife

Wildlife within those areas planned for development would largely be displaced into adjacent areas during the construction process. Those species dependent on the existing habitat proposed for development will likely decrease in the local area. Following construction, landscape vegetation and preserved trees would provide habitat for those species tolerant of suburban and urban development, possibly resulting in increased populations in the surrounding area. Direct and indirect effects of development may result in negative or positive

impacts to the populations of some species in the area. However, cats and traffic leaving the Project site certainly contribute to off-site effects to wildlife in the vicinity.

5.1.5.3 Listed, Proposed, and Candidate Species

Off-site impacts to the pygmy-owl have been described under indirect and cumulative effects above.

5.1.5.4 Wetlands

No wetlands are expected to be disturbed as a result of the Preferred Alternative; thus, no off-site impacts to wetlands are expected.

5.1.5.5 Geology and Soils

Off-site impacts to geologic features and soils as a result of the Preferred Alternative have been described under indirect and cumulative effects above.

5.1.5.6 Land Use

Adjacent land uses will not be impacted during construction. Low-density residential development to the south and west will be buffered from development on the Property by development setbacks and the Reserve. Traffic patterns will be affected by proposed road improvements to Thornydale Road and Camino de Manana.

5.1.5.7 Water Resources

The Preferred Alternative would contribute to the overall demand for water resources in the greater Marana area.

5.1.5.8 Air Quality

Construction of the Project will result in minor, short-term impacts to air quality. An increase in particulate matter can be anticipated as a consequence of soil disturbance and operation of heavy equipment during roadway construction. These impacts are short-term in nature and will be minimized by standard dust and erosion control practices, such as hay bales, and other erosion barriers to control soil erosion, and use of water trucks to minimize fugitive dust emissions. Paved roads within developed areas will, in the long-term, reduce particulate emissions. There will be an increase in vehicle emissions due to increased traffic. Ultimately, landscaping and development of the parcel as a residential community is expected to reduce dust emissions below current levels.

The Preferred Alternative would contribute to degradation of air quality in Pima County, primarily through an increase in vehicle emissions.

5.1.5.9 Water Quality

The Preferred Alternative has the potential for causing off-site impacts to water quality because of increased pollutants in the storm water runoff due to the increased of impermeable surfaces and human activity. Adherence to local and federal regulations will minimize the potential.

5.1.5.10 Cultural Resources

No off-site impacts to significant cultural resources are expected from completion of the Preferred Alternative.

5.1.5.11 Socioeconomic

The Preferred Alternative would increase in the overall population and jobs in the area, resulting in increased traffic and demand for government service, roads, schools, stores and services. The Project would not displace anyone living in the area and therefore should not adversely impact any minority or economically disadvantaged communities. As there are no commercial or manufacturing elements to the Project, only maintenance and service jobs may result.

5.2 Alternative 2: Modification of the Project Design

5.2.1 On-site Impacts

5.2.1.1 Vegetation

The residential development of the Preferred Alternative will directly impact 103 acres of native Sonoran desertscrub. Natural vegetation in development areas will be removed and replaced with single-family homes and associated roads and utilities. Alternative 2 also contains 409 acres of Natural Open Space. However, approximately 100 acres of the open space in Alternative 2 is located within individual estate lots. This could diminish the value of this open space as viable wildlife habitat, especially for non-urban adapted species. The residential development will be landscaped consistent with a desert theme, incorporating plant materials indigenous to, and blending in with, the Sonoran desert. Spine washes bisecting the Property from northeast to southwest will be preserved except for a single road

crossing. Vegetation salvage plans for development areas will substantially reduce impact to vegetation. Development would occur where vegetation consists primarily of upland Sonoran desertscrub. Existing native vegetation will be maintained in development areas to the maximum extent practicable.

5.2.1.2 Wildlife

Wildlife within those areas planned for development would largely be displaced to adjacent areas during the construction process. Following construction, landscape vegetation and preserved trees would provide habitat for those species tolerant of suburban and urban development. Direct and indirect effects of development may result in negative or positive impacts to the populations of some wildlife species. Populations of some suburban adapted species are likely to increase because of increases in availability of food for them near proposed development areas and their preference for, or tolerance of developed areas. Due to approximately 100 acres of the open space in Alternative 2 being located within individual estate lots, species that are intolerant of human activities will be impacted more than in the Preferred Alternative. The specific on-site impacts for the sensitive species considered in this document are presented below.

5.2.1.3 Listed, Proposed, and Candidate Species

Cactus Ferruginous Pygmy-Owl

The on-site impacts of the implementation of Alternative 2 are nearly identical to the impacts outlined in the Preferred Alternative. Through development, the implementation of Alternative 2 will directly affect 103 acres of Arizona upland habitat. A small area of xeroriparian habitat may be affected by construction of an internal access road, which will cross the washes at several points. In addition, a limited amount of habitat may be temporarily disturbed to provide utility access. All areas disturbed for the purposes of the installation of utilities will be restored to their natural state. The remainder of the xeroriparian wash habitat on the Property will be maintained as open space. The primary difference between the Preferred Alternative and Alternative 2 is that a significant amount (approximately 100 acres) of the open space would be contained within deeded estate lots. Alternative 2 also incorporates a limited amount of commercial and multi-family homes in the development plan. Deed restrictions on the estate lots would ensure that the open space within these lots would remain undisturbed. However, in informal discussions between the FWS and Exeter, the FWS expressed concern over potential difficulties in maintaining the integrity of portions of the Reserve that

lie within the boundaries of deeded estate lots. Multi-family and commercial acres also have the potential to impact pygmy-owls to a greater extent than single-family homes. Therefore, this alternative was considered non-practicable.

Lesser Long-Nosed Bat

There are no known roost sites for the lesser long-nosed bat in the vicinity of the Property. This species forages widely, thus it is remotely possible that implementation of the Project may affect some foraging areas. Existing plant-salvage statutes will offset the potential loss of forage species. There are numerous potential foraging areas closer to known roosting areas. The development of Alternative 2 would have similar effects on the lesser long-nosed bat as the Preferred Alternative.

Desert Tortoise

Effects to individual desert tortoise resulting from the implementation of Alternative 2 are remotely possible. As there are no boulder strewn areas or washes with caves on the Property, desert tortoises are expected to be absent or rare on the Property. It is possible that a small number of desert tortoises may be directly affected by construction activities. If a desert tortoise is discovered on the site during the construction phase of the project, the AGFD tortoise handling guidelines will be adhered to. The development of Alternative 2 would have similar effects on the desert tortoise as the Preferred Alternative.

Gila Monster

Gila monster habitat requirements and preferences are very similar to those of the desert tortoise. It is possible that a small number of individuals will be affected by development of this Project. Implementation of Alternative 2 would have similar effects on the Gila monster as the Preferred Alternative.

Gilded Flicker

The gilded flicker is widespread in Pima County, but less common than the gila woodpecker in both rural and suburban habitats. Though some individual birds may be affected, no population level effects are anticipated. Implementation of Alternative 2 would have similar impacts on the gilded flicker as the Preferred Alternative.

Abert's Towhee

The Abert's towhee can be locally common throughout its range though is thought by some to be declining in Pima County. This bird may be able to adapt well to suburban development in some circumstances. Although some individual birds may be affected, no population level effects are anticipated. Implementation of Alternative 2 would have similar effects upon the Abert's towhee as the Preferred Alternative.

Tumamoc Globeberry

Effects upon individual Tumamoc globeberries may occur during the implementation of the Project. This species was de-listed by the FWS. Sufficient populations exist in remote areas throughout the region to ensure that the development of the Alternative 2 will not have any population-level effects upon the Tumamoc globeberry.

5.2.1.4 Wetlands

No wetlands are expected to be disturbed as a result of Alternative 2; thus, no direct effects to wetlands are expected.

5.2.1.5 Geology and Soils

On-site impacts to geologic features and soils as a result of Alternative 2 are expected to be similar to the Preferred Alternative.

5.2.1.6 Land Use

Alternative 2 would impact land use in the same way as the Preferred Alternative. It would contribute to the conversion of undeveloped land in Pima County. However, the proposed Reserve would also insure that 80 % of the Property would be preserved and managed as open space.

5.2.1.7 Water Resources

Alternative 2 would contribute to the overall demand for water resources in the greater Marana area.

5.1.1.8 Jurisdictional Waters of the United States

Of the nine drainages identified on the Property as being jurisdictional, eight will be left alone and one will be impacted. Impacts to waters of the United States will consist of a single road crossing. Total impact to Jurisdictional Waters of the United States will be less than one acre. A CWA section 404 nationwide permit will be obtained.

5.2.1.9 Air Quality

Alternative 2 would contribute to degradation of air quality in Pima County, primarily through an increase in automobile emissions.

5.2.1.10 Water Quality

Alternative 2 may result in an increase in levels of pollutants in storm water runoff that may add to that produced by other existing or planned developments in the region. Adherence to local and federal regulations will minimize the potential for increased levels of pollutants in storm water runoff.

5.2.1.11 Cultural Resources

No direct impacts to significant cultural resources are expected from completion of Alternative 2.

5.2.1.12 Socioeconomic

Alternative 2 would have the same socioeconomic impacts as the Preferred Alternative.

5.2.2 Indirect Effects

The indirect effects for the implementation of Alternative 2 would be similar to those outlined for the Preferred Alternative (section 5.1.2). However, the inclusion of commercial and multi-family residential uses would result in a more intense occurrence of effects.

5.2.3 Cumulative Effects

The cumulative effects for the implementation of Alternative 2 would be similar to those outlined for the Preferred Alternative (section 5.1.3). However, the inclusion of commercial and multi-family residential uses would result in a more intense occurrence of effects.

5.2.4 Assessment of Take

The assessment of take for the implementation of Alternative 2 would be similar to those outlined for the Preferred Alternative (section 5.1.4). However, the

inclusion of commercial and multi-family residential uses would result in an increased likelihood of take.

5.2.5 Off-site Impacts

The off-site impacts take for the implementation of Alternative 2 would be similar to those outlined for the Preferred Alternative (section 5.1.5). However, the inclusion of commercial and multi-family residential uses would result in a more intense occurrence of effects.

5.3 Alternative 3: No Action Alternative

Under this alternative, the Applicant would not develop the Property and no impacts to or take of the pygmy-owl or other sensitive species would occur. However, abandonment of the Preferred Alternative would result in the loss of significant monies invested by the Applicant in the Property and would be economically impractical for the Applicant. Moreover, the Property would have no active management for endangered species and no provision of land or money would go toward the long-term conservation of the pygmy-owl.

6.0 ACTIONS TO MINIMIZE AND MITIGATE IMPACTS

6.1 Biological Goals and Objectives

The biological goal of the HCP is to allow for the development of the Project while implementing measures that may move the pygmy-owl towards recovery. Attainment of this goal will be promoted through the following objectives:

a. Conserve open space within the project boundaries;
b. Minimize potential effects to the pygmy-owl related to construction activities; and
c. Reduce long-term and indirect effects to the pygmy-owl through education, monitoring, and professional management to benefit the pygmy-owl.

6.2 On-site Conservation Measures

The Permittee will comply with the measures set forth in the HCP.

- Areas delineated as the Reserve, identified on Figure 6 of the Draft EA/HCP, shall not be impacted at any time, except as provided elsewhere in the HCP.

- Within the Project area, if salvage of a saguaro is not practicable, construction activities may proceed and can include destruction of saguaros, provided that they are inspected and determined to not be in current use for pygmy-owl nesting. If a saguaro must be destroyed, the Permittee will plant three saguaros (minimum of 12 feet tall) as replacements.

- Within the Project area, if inspected trees or saguaros are not being used for nesting by pygmy-owls, construction may proceed. Following inspections with negative results (no pygmy-owl detection), the Permittee will require the developer and/or lot owner to cover the inspected cavities with wire mesh or other appropriate material to preclude use of the cavities by pygmy-owls until grading and construction activities have ceased. All cover material will be removed at the completion of building activities. Materials used to cover cavities will be placed in a manner that does not injure the plant.

6.2.1 Pygmy-Owl Conservation

6.2.1.1 General Conservation Measures

The Project has been configured in consideration of the guidelines outlined in the FWS Pygmy-Owl Land Owner Guidance document and the Draft Cactus Ferruginous Pygmy-Owl Recovery Plan. Approximately 409 acres of xeroriparian wash and upland habitat on the Property will be permanent open space in a dedicated Reserve. The Project has been developed in order to avoid, to the maximum extent practicable, the portions of the Property historically and

currently occupied by pygmy-owls. The occupancy information was provided to the Applicant by the FWS and AGFD. The undeveloped Reserve will allow for continued use of the Property by existing pygmy-owls and provide additional potential habitat to allow for future dispersal and potential occupancy by other pygmy-owls. This effort will be enhanced by the implementation of the Residential Development Landscape Theme of the Project. The overall goal of landscaping on the Property will be to maintain a desert theme, incorporating plant materials indigenous to, and blending in with, the Sonoran Desert. Natural buffers will be maintained along all roadways abutting and within the Property. Natural buffers will be maintained along the perimeter of the development pods and lot lines adjacent to the Reserve, maximizing the conservation value of the Reserve.

Development of the Project will be phased. Build out will not be completed for several years. There is the possibility that pygmy-owls may move into the Project area. To determine whether pygmy-owls have moved onto or adjacent to a planned new construction phase, surveys will be conducted (using the FWS approved survey protocol in effect at the time of such activity) prior to initiating salvaging, clearing, or construction activities. Surveys will be conducted on all suitable habitat of the Property. If vegetation disturbance activities within the Project area have not been completed prior to January 1 of any given year, pygmy-owl surveys will be conducted the following survey season according to protocol approved by FWS. The FWS, in coordination with AGFD and the Permittee's Environmental Consultant, will determine whether a pygmy-owl activity center or nest site exists and whether a change in status (i.e., abandonment) is appropriate, using the best available information, including survey detection and telemetry data (if available), and other monitoring information. Prior to considering any change in status (i.e., abandonment) of a site, the FWS believes protocol surveys and monitoring should be completed over a period of several consecutive years with no positive results (pygmy-owl detections). The FWS will also consider the amount of suitable habitat within detected pygmy-owl home ranges and any changes in the landscape in this assessment.

The HCP incorporates specific conservation measures to guide development in the event that a pygmy-owl nest site or territory center is detected within 600 meters of the Project. Certain levels of construction can occur within each of these zones without resulting in a situation that reaches the level of effect not already considered in the analysis of potential Project impacts. In the specific scenarios below, continued construction activities would not harm or harass a pygmy-owl as defined in 50 CFR 17.3.

In the event that a pygmy-owl enters the Project area during construction and establishes a territory or nest site, qualified biologists retained by the Permittee will be called upon to assess the situation. If it is determined by the FWS that the arriving pygmy-owl has established a territory, the Permittee will temporarily avoid activities in the vicinity of the nest or activity center and consult the FWS. A dispersing pygmy-owl that has been determined to occupy an area for two weeks or more shall be considered to have established a territory (AGFD, pers. comm.). The level of development activity in the vicinity of a new pygmy-owl territory or activity center will vary depending on the distance between the pygmy-owl site and the planned development. The presumed territory has been divided into four zones based upon the degree of proximity to the pygmy-owl site.

ZONE I – 0-100 Meters from the Pygmy-owl Activity Center

- There shall be no removal of active nest sites and no land clearing activity within a 100-meter (330 foot) radius of a currently occupied pygmy-owl nest or activity center at any time.

- Construction-related activities may continue on lands that have already been cleared of vegetation provided that they do not exceed the levels/intensity of activity that was occurring during the period of time that the pygmy-owl territory was established.

- Activities that would be more intense or cause greater levels of noise disturbance than were occurring during the period of time that the territory was established cannot proceed during the pygmy-owl breeding season (February 1 through July 31).

ZONE II – 100-400 Meters from the Pygmy-owl Activity Center

- No additional clearing of vegetation will be permitted during the pygmy-owl breeding season (February 1 through July 31).

- No restrictions on the nature or type of construction activity outside of the pygmy-owl breeding season (August 1 through January 31) provided it is consistent with the approved HCP and IA.

- Construction activities during the pygmy-owl breeding season (February 1 to July 31) cannot exceed the levels or intensity of activity that occurred at the time the pygmy-owl territory was established.

ZONE III – 400 to 600 Meters from the pygmy-owl Activity Center

- No additional clearing of vegetation will be permitted during the pygmy-owl breeding season (February 1 through July 31) without FWS approval.

- No restrictions on the levels or intensity of construction activity (excluding the clearing of vegetation) at any time of the year provided it is consistent with the approved HCP and IA.

ZONE IV – Greater than 600 Meters from the pygmy-owl Activity Center

- No restrictions. Any activity consistent with the Project description provided in the HCP and the approved IA is allowed.

In addition to the above, in the event that a pair of pygmy-owls establishes a breeding territory within the 100 meters of an area on the Property scheduled for construction, a 280-acre breeding territory will be designated. This 280-acre territory will be circular with the centroid being the nest or activity center. Because construction may need to be redesigned to accommodate a breeding pair of owls, the Permittee will be allowed to increase construction by one and one-half acres for every one acre that needs to be adjusted. Development within the Project boundary may not exceed 22%.

The Permittee will adhere to the following conservation guidelines:

- Promote connectivity to allow for movement within pygmy-owl home ranges, between pygmy-owl sites and adjacent suitable habitat, and on-site open space.

- Monitor development activities within the home range of a newly arrived pygmy-owl, and conservation measures identified in the HCP, to ensure compliance with the terms and conditions of the HCP and the IA.

- Only directional and low intensity lights will be used within 100 meters (330 feet) of a new nest site or activity center to minimize potential adverse effects to resident pygmy-owls.

- The Permittee will provide educational information to construction crews for all new grading or construction activity. The purpose of the educational information is to inform crews

of these terms and conditions, to minimize disturbances to pygmy-owls, and to ensure job site perimeters are maintained.

- The Permittee will conduct public education and awareness programs for residents within and adjacent to the Property and develop measures that reduce or eliminate free-roaming cats to minimize potential adverse effects to pygmy-owls.

- The Permittee will require adherence to the Reserve Management Plan (RMP), which addresses acceptable and prohibited uses and management actions. Vegetation disturbance and other activities (e.g., ORV, motorbike use/racing, firearm target practicing, jeep tours, and application of insecticides and herbicides) that might significantly degrade pygmy-owl habitat shall be prohibited within the Reserve.

- Land clearing, heavy equipment operation, and all other construction related activities will be limited to the Project area. No construction related activities, personnel, or equipment will be allowed into the Reserve. Silt fence will be installed and maintained around the perimeter of the Project area in order to delineate the approved construction boundaries.

- The Permittee will employ an on-site monitor during construction in order to ensure compliance with the terms and conditions of the HCP and the Permit.

- Pet restrictions will be put in place for all residences in the Project as homeowner resolutions in order to guard against possible mortality of pygmy-owls, their prey species, and other wildlife. Dogs will be kept under control or leashed at all times. Residents of the Project will be strictly prohibited from keeping free roaming cats.

6.2.2 Plant Salvage Plan

The Permittee will commission a Native Plant Salvage Plan. This plan will conform to all applicable state, county, and local regulations.

6.2.3 Environmental Compliance Monitors

Environmental Compliance Monitors (ECMs) will be present on the Project area during the clearing, grading, and construction phase of the Project. These ECMs will have the authority to ensure that the Project is executed in compliance with all environmental regulations and permit conditions. Specific responsibilities of

the ECMs will include, but are not limited to the following:

a. Ensure that all construction management personnel have attended the environmental training session;
b. Prevent any unauthorized encroachment into the Reserve;
c. Monitor all construction activities;
d. Provide relevant biological information and assistance to construction personnel; and
e. Report any instances of non-compliance with environmental regulations.

6.3 Monitoring and Reporting

The Permittee (or the Reserve management entity as provided in this section) will adhere to the following monitoring and reporting requirements.

- By January 1 of each year for the life of the Permit, the Permittee or Reserve management entity will submit an annual written report describing the activities of the Permittee and the Reserve management entity (or other pertinent parties) required by the HCP, this Agreement, or the Permit and an analysis of whether the terms of the HCP, this Agreement, and the Permit were met for the reporting period. The report shall provide all reasonably available data regarding the status of activities (e.g., pygmy-owl surveys, ongoing and completed construction phases), any incidental take of pygmy-owls, and, where required by the FWS, any known changes to the overall population of pygmy-owls that occurred in or immediately adjacent to the Property during the reporting period. In addition, the Permittee will seek technical assistance from the FWS in implementing these terms and conditions in a manner most effective for minimizing impacts to pygmy-owls. In the case of a corporate Permittee, the report shall also include the following certification from a responsible company official who supervised or directed the preparation of the report:

  Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

- Pre-construction presence/absence surveys for the pygmy-owl will be conducted on the Property according to established protocol.

- On-site monitoring of the Project according to established protocol, during the clearing, grading, and construction phase of the Project (section 7.2.3). citation?

- Compliance and effect/effectiveness monitoring and reporting requirements that are part of the HCP for the Project are summarized below. All reports will be sent annually on January 1 to the Field Supervisor of the FWS Ecological Services Field Office, Phoenix, Arizona. Failure by the Permittee to file a report is not a

breach of the HCP unless and until either: 1) it is an intentional omission; or 2) after notification by the FWS of the failure, the Permittee does not respond within 30 days.

- Cavity Inspection Reports. The Permittee will be required to submit any necessary nest-cavity inspection reports within ten days of completion of fieldwork to the FWS Arizona Ecological Services Field Office.

- Mortality Reports. Upon locating a dead, injured, or sick pygmy-owl, or any other endangered or threatened species, the Permittee is required to contact the FWS Law Enforcement Office in Mesa, Arizona (480) 835-8289, for care and disposition instructions. Extreme care should be taken in handling sick or injured individuals to ensure effective and proper treatment. Care should also be taken in handling dead specimens to preserve biological materials in the best possible state for analysis of cause of death. In conjunction with the care of sick or injured endangered/threatened species, or preservation of biological materials from a dead specimen, the Permittee and his contractor/subcontractor have the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

- Annual surveys corresponding to the construction phase of the Project. The Permittee will conduct annual surveys on the entire Property using current survey protocol. The Permittee will be responsible for funding these surveys. Personnel will conduct all surveys with appropriate survey permits from the FWS. Should any pygmy-owl be detected during these surveys, the Permittee will notify the FWS as required under the conditions of the surveyor's permit to conduct surveys.

  Should a pygmy-owl be detected, a more in-depth monitoring effort may be implemented at the FWS's discretion. Prior to initiating these surveys the FWS will coordinate with the Permittee to ensure that there is no conflict between the telemetry protocol and the Permittee's activities on the Property. The Permittee will fund this telemetry effort at up to $1,000 per bird for up to five birds. The total potential maximum commitment of funds by the Permittee for follow-up survey/telemetry is a total of $5,000. All telemetry activities within the Property will be conducted in the presence of a qualified biologist retained by the Permittee. The Permittee's obligation to fund telemetry studies will cease within one year of completion of build-out, or upon the expiration date of the Permit, whichever occurs first. On a confidential basis, a copy of the telemetry results will be provided to the Permittee. The Permittee will not release this information to the public or otherwise make it available without the prior written consent of the FWS. The Permittee's responsibility for funding telemetry studies is triggered by a pygmy-owl detection on or immediately adjacent (within 600 meters) to the Property.

  If it is determined that a pygmy-owl has established an active breeding territory

on the Property, the Permittee will provide funding for AGFD to intensively monitor the activities of the breeding pair. The Permittee will provide up to $15,000 for this effort. It is hoped this intensive monitoring will provide the scientific community with valuable information regarding pygmy-owl breeding productivity, foraging ecology, habitat use, and time activity budgets. The collection and analysis of this information will aid in the conservation and recovery of the pygmy-owl. All monitoring activities within the Property will be conducted in cooperation with a biological consultant retained by the Permittee. On a confidential basis, a copy of the monitoring results will be provided to the Permittee. The Permittee will not release this information to the public or otherwise make it available without the prior written consent of the FWS. The Permittee's responsibility for funding intensive monitoring studies is triggered by the detection of an active pygmy-owl breeding territory on the Property. The Permittee's obligation to fund monitoring studies will cease within one year of completion of build-out, or upon the expiration date of the Permit, whichever occurs first.

Prior to any Project construction activities (which include, but are not limited to, residential areas, roads, water, sewer/septic, gas, telephone, cable TV, electric, and common use areas and facilities) that involve the clearing of vegetation during the pygmy-owl nesting period (February 1 to July 31), all saguaros greater than eight feet in height and all trees greater than six inches dbh[1] that occur within the proposed grading limits will be inspected to determine if they are being used as a nest site by a pygmy-owl. If a tree or saguaro is being used as a pygmy-owl nest site, construction activities will be curtailed within a 100-400 meter radius of the nest cavity until after the nesting period. There shall be no removal of pygmy-owl nest sites and no land clearing activity within a 100-meter (330 foot) radius of a currently occupied pygmy-owl nest or activity center at any time. Construction-related activities within 100-400 meters may continue on lands that have already been cleared of vegetation provided that they do not exceed the levels/intensity of activity that was occurring during the period of time that the pygmy-owl territory was established. Activities within that area that would be more intense or cause greater levels of noise disturbance than were occurring during the period of time that the territory was established cannot proceed during the pygmy-owl breeding season.

All inspections will be conducted by a qualified biologist who has obtained a permit from the FWS to conduct inspections of potential pygmy-owl nest sites.

The cavity inspection requirements will only apply to construction that is commenced during the pygmy-owl nesting period. No cavity inspection will be required for construction commenced outside of the pygmy-owl nesting period.

[1] Diameter at breast height (dbh) is defined as the stem diameter 4.5 feet above the ground surface. Six inches dbh is the minimum tree-stem size that will require inspection. Multiple-stem trees that do not have a single stem greater that six inches dbh are excluded from this requirement.

After its selection, the Reserve management entity shall be solely responsible for the surveying, monitoring, and reporting requirements of the HCP applicable to the Reserve.

6.4 Saguaro Protection

If practicable, saguaros will be preserved in place. If it is not practicable to preserve saguaros in place and if the saguaro is salvageable, it will be transplanted to an appropriate location. The Permittee will make every reasonable effort to preserve saguaros in place. The FWS will be notified prior to the removal of saguaros and potential nest trees and given the opportunity to inspect them prior to removal. The FWS will have 15 days subsequent to notification to conduct their inspection. All FWS inspections will be conducted in the presence of a qualified biologist retained by the Permittee.

6.5 Duration and Funding in the HCP

The duration of the requested Permit is for five (5) years. The Permittee will provide funds necessary to manage the Reserve and implement the HCP in perpetuity. Until the Reserve management entity is selected and a RMP is adopted pursuant to the HCP and the IA, the Permittee will provide such funds on an annual basis. As part of its yearly budget cycle, the Permittee will estimate the costs of projects and programs called for in the HCP. The FWS will review annual activities and budget estimates. Funding allocations will be based on estimated costs of activities to be implemented in the coming year. Examples of HCP compliance costs include fencing, trespass control, education, trail design, erosion control, fire management, and wildlife management. In addition to the costs included in the annual management budget that will fund most of the required activities, the Permittee will pay the costs associated with the recurring elements such as monitoring (including the costs of telemetry and more intensive monitoring upon detection of a pygmy-owl, or determination that a pygmy-owl has established an active breeding territory, on the Property as set forth in section 7.3), reporting, and consultation with the FWS, and with non-recurring elements such changes related to adaptive management and changed circumstances.

Promptly, should the Permit be issued, the Permittee will promptly erect a fence around the Reserve and provide construction safeguards (silt fence) around the portions of the Reserve adjacent to the Project area where development will occur. The estimated cost of the fencing and safeguards is approximately $40,000. The amount of the remaining costs to be paid directly by the Permittee on an annual basis will depend on the length of time required to select the Reserve management entity and adopt the RMP.

Once the Reserve management entity is selected and the RMP is adopted, the Permittee will establish an endowment for the operation, management, and monitoring of the Reserve in perpetuity, as provided for by the HCP and the RMP.

The amounts of the annual funding and the endowment will be submitted by the

Permittee for review by the FWS.

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APPENDIX 1

AGFD TORTOISE (AND GILA MONSTER) HANDLING GUIDELINES